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PROGRESS REPORT

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OF

AREA PROGRAM PLANNING

IN

CAMPBELL COUNTY, WYOMING

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3 PROGRESS REPORT

OF

AREA PROGRAM PLANNING

IN

CAMPBELL COUNTY, WYOMING //



Harry W. Pearson  
State Land Planning Specialist  
Laramie, Wyoming  
June, 1937  
5.C.

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The following preliminary report is based upon data and information made available by the Agricultural Experiment Station and other agencies interested in Land Use and by field surveys of the State Land Planning Specialist of Land Utilization Division of the Resettlement Administration. The suggestions made are not arbitrary. Additional information, as well as future conditions, may determine the need for considerable revision in recommendations and conclusions that seem to be evident at the present time. It is recognized that the application of the knowledge of livestock producers and farmers, the establishment of better methods of production, and the development of water reservoirs may have a profound influence on future land use.

Especial acknowledgement is due the Works Progress Administration for the assistance received. Workers on W. P. A. and N. Y. A. projects provided considerable help in the compilation and development of much of the material and information in the following report.

\* \* \* \* \*  
\* \* \* \* \*  
\* \* \*  
\*

The following is a list of the names of the persons who have been

admitted to the office of the Secretary of the State of New York

since the 1st of January, 1880, to the 1st of January, 1881.

The names of the persons who have been admitted to the office of the

Secretary of the State of New York, since the 1st of January, 1880,

to the 1st of January, 1881, are as follows:

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THE  
SECRETARY  
OF THE  
STATE  
OF  
NEW  
YORK

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PROGRESS REPORT

LAND USE PLANNING

CAMPBELL COUNTY

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1. General (100%) - 100% (100%)

.....

2. General (100%) - 100% (100%)

.....

3. General (100%) - 100% (100%)

.....

4. General (100%) - 100% (100%)

.....

5. General (100%) - 100% (100%)

.....

6. General (100%) - 100% (100%)

.....

7. General (100%) - 100% (100%)

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8. General (100%) - 100% (100%)

.....

9. General (100%) - 100% (100%)

.....



## AREA PROGRAM PLANNING

### Land Use Survey    Campbell County

Campbell County, a region containing approximately 3,047,000 acres, is situated in northeastern Wyoming between the 105 and 106 meridians and between 43.5 and 45 degrees of latitude north. The area lies essentially along the western boundary of the Great Plains and is generally described as a high upland plateau. The surface features are very characteristic of those generally associated with an undulating plain. The western and northern portion of the County is generally rough and broken, a conspicuous interruption being noted by the Pumpkin Buttes in the southwestern part of the area. Frequent sandstone ridges, along with many relatively small red cone shaped escarpments composed chiefly of escoria, the clinkers of burned out coal beds, are also prominent features. The average elevation is between 4500 and 5000 feet.

The area is drained by tributaries of the Powder River on the west, the Little Powder River in the north and by the Belle Fourche which flows from the southern part of the County in a northeasterly direction crossing the County line at about the east-central portion. There are no high mountains in the area on which winter snow accumulates. The stream flows are thus essentially all intermittent. In the spring of the year or after torrential rains, considerable water may be in evidence; during the late summer, however, many of the streams become quite shallow and frequently near the head-water become completely dry. In this respect, the streams in this area differ materially from those which have their source in high mountains, which being fed by melting snow and ice, flow continuously throughout the summer.

The soils of the area evidence considerable variation ranging from





a heavy clay to areas which are fairly sandy. <sup>1/</sup>A report of a soil survey in Campbell County indicate that a grayish brown soil residual from shales is the most extensive. During years of heavy rainfall fairly satisfactory crop yields are produced. Failures, however, are frequent and the soil is generally difficult to handle. <sup>2/</sup>Information developed by the Dept. of Soils at the University and the State Land Planning Specialist would indicate that this type of soil is generally very poor farm land, that over a period of years a grain crop of not over a 12 bushel average can be expected more than about one year out of four. The attempt to farm this type of soil has frequently occurred in the past and is still a much too frequent practice. In fact many of our present land use problems in this area are associated with the attempt to farm this type of submarginal crop land. The least extensive type of soil is a sandy loam lying over a yellowish brown sand stone. This type of soil is found on the more gentle slopes and higher ridge lands and its ability to readily absorb moisture and the presence of a fairly substantial amount of organic matter makes it the best dry farm soil in the County. It is susceptible to a satisfactory cultivation practice and its use for crop production results in fewer failures than any other type of soil in the area. Over a period of years, information available indicates that a crop failure need not be expected more than one year out of four. In a few areas, that receive drainage from surrounding hills, a fairly good crop can be expected most of the time. A third type of soil, which roughly includes the balance of the County, is associated with the clinker beds resulting from burned out coal seams. These soils occupy the rolling ridges and knolls where the clinker beds still cap the sandstone and the higher crop lands, it is generally prevalent in the eastern and southern portion of the County. Under con-

1/Report of Soils of southeast Campbell County, Wyoming, by T.J. Dunnewald  
2/Refer to map on page 106.





ditions of fairly level topography this type soil is also capable of grain or forage crop production under recommended farm practice. The area, however, is not very extensive and suitable tracts are widely dispersed. When the cost of transportation is taken into consideration the land adapted to commercial grain production in this County is relatively small. An assumption based on the soil survey and land classification data available and present road conditions indicate that the production of wheat is economically limited to about 40 miles from a shipping point. Thus wheat production is essentially an unsound practice in the northeastern and south-central portion of the County even though the soil is, in places, capable of producing adequate yields. Forage crop production, on lands which have already been plowed, should be considered in the development of a program that will effect conservation but yet maintain the greatest number of people in the area.

The story of the factors associated with the development of this area is essentially the story of the growth of farming in the whole Great Plains area. The maximum settlement in Campbell County, however, taking place at a later date than in areas to the east. Immediately subsequent to the reconstruction period following the war, wheat, as a cash grain crop, was beginning to exert increasingly stronger competition for the use of land. Information in figure 1 indicates the relative price, based on a simple average of the monthly data of four important commodities in this area. As suggested, the data illustrates one reason for some of the mis-land use practices which have developed in northeastern Wyoming. The average yield of wheat in Campbell County from 1925 to 1930 inclusive was, as indicated in table 1, 12 bushels per acre. <sup>3/</sup>The average carrying capacity for range cattle is approximately 40 acres per animal unit per year with an average production of approximately 3/ Refer to page 88.





275 to 300 pounds of beef. The average price of beef and wheat, from 1915 to 1920, was \$9.04 per hundred weight and \$1.69 per bushel respectively. Assuming an approximate cost of production for normal conditions of \$6 a hundred weight for beef and 60¢ a bushel for wheat, a section of land would, under the above prices, provide a net return of approximately \$140 worth of beef, while 40 acres of land, on a basis of 12 bushel yield, would provide a return of approximately \$500. From 1920 to 1925 the difference was even wider since wheat averaged \$1.22 per bushel while beef had fallen to \$5.22 a hundred weight, a figure that was probably below the cost of production. The development of power machinery and better methods of production, a period of abnormally high rainfall associated with a price level which made wheat a crop that resulted in an immediate return much greater than was possible by grazing livestock on a similar amount of land, provided the stimulus for the contest which has followed. Land was relatively cheap and abundant and as a result the plow turned under the sod, the grass of which had supplied forage since 1860 for increasing numbers of domestic livestock.

During the development or homestead period, the greater number of farmsteads were, for the most part, so organized that wheat provided the important source of income on by far the greater number of farms. Wheat or other cash grain, was and still frequently is the important agricultural enterprise. A partial reason for this was probably inherent in the homestead laws under which a large amount of ownership became possible. The laws developed primarily as a means of providing an adequate farm in the more fertile areas in the middle west or eastern portion of the United States were not well suited to the soil and climatic conditions in this region. The land permitted under the homestead acts, which subsequently received the benefit of irrigation water, was, as a



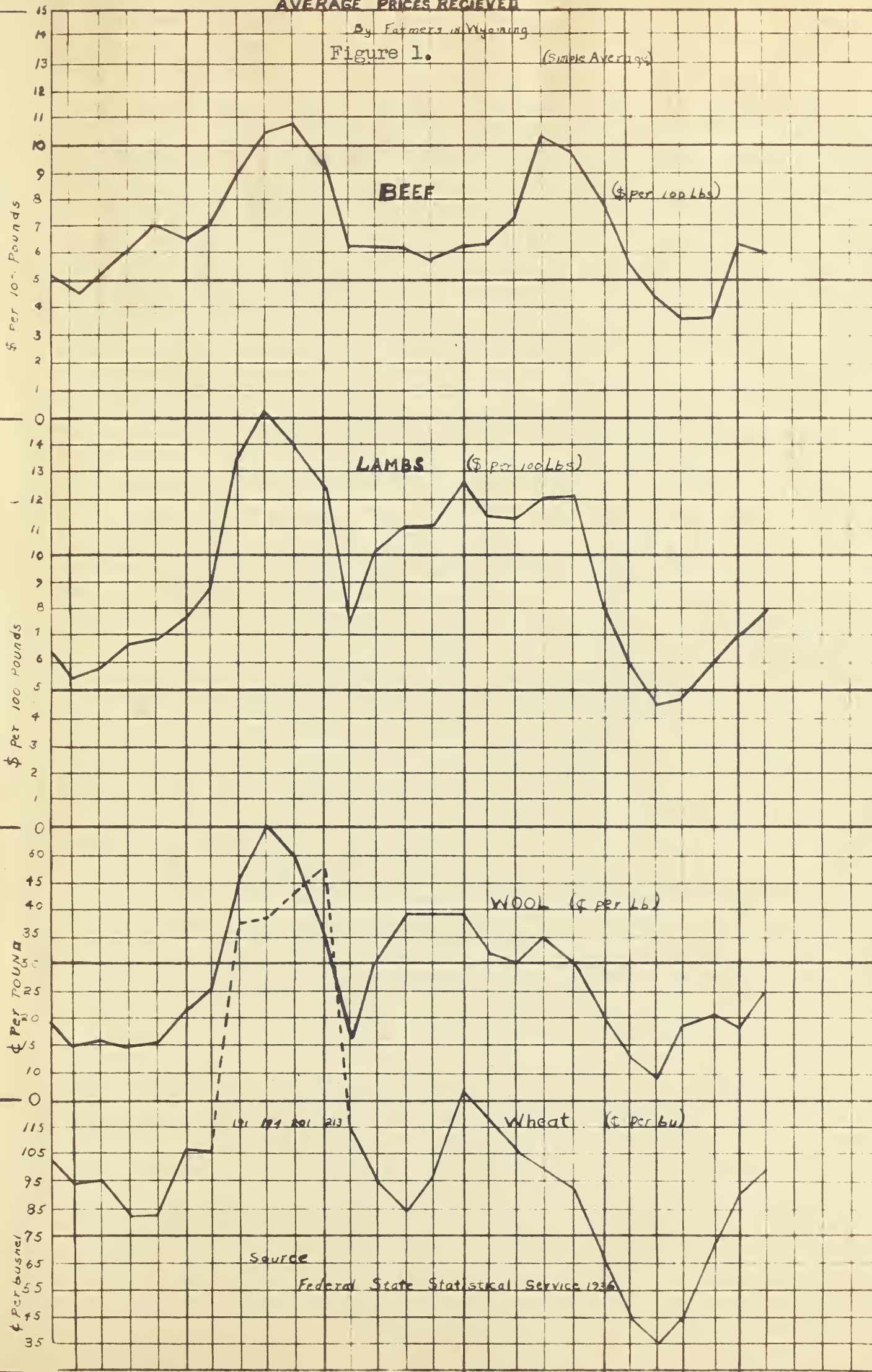


# AVERAGE PRICES RECEIVED

By Farmers in Wyoming

Figure 1.

(Simple Average)







rule, the only situation in which sufficient area could be obtained that would provide an adequate family living. The land available under these laws in areas in which it was only possible to organize a dry farm or a ranch, was not in a great many cases sufficient for the development of sound economic operating units. The area available obviously would not permit a ranch set-up and consequently distress among many of the farmers is the result of an attempt to continue farm operations on land that will not sustain adequate crop yields. In a great many cases the farmers themselves realize as much as any one that there present practices and farm operations are not suited to the climate and soil conditions under which they are living. Their units are, however, too small to permit them to change to livestock production. In many cases sincere effort is made to produce an income sufficient to meet taxes, interest charges, other costs, and a living for their families. In fact the hope of success and the need to meet fixed costs is an important reason for the continued attempt to produce cash grain on land that is obviously submarginal for wheat production.

Crop farming in the area under consideration is, under the best conditions, a highly speculative type of farming. Information shown in Table 1 indicates that from 1924 to 1935 inclusive the average yield of wheat in Campbell County has been less than 10 bushels per acre planted. During the first half of the period, from 1924 to 1935, the average yield on planted acres was about 12 bushels, while the average yield from 1930 to 1936 was approximately 7 bushels per acre. Due to climatic and topographical conditions there is a wide range in production in various years. In 1934 the yields of wheat averaged less than 2 bushels per acre. Only 5 years out of the 12 under consideration were the yields above 10 bushels and only once during the period was the yield above 15 bushels per acre.





As would be expected there is a significant relationship between precipitation and yield per acre. High yields are, of course, associated with heavy rainfall. Information available, however, would seem to indicate that the yields of grain have been decreasing at a greater rate than the trend in rainfall. The apparent implication being that the yields per acre of grain, under heavy precipitation, will not be as high in the future as they have been in the past. Table 1 shows the monthly precipitation at stations in or near Campbell County for the period 1924 to 1934 inclusive. The chart shows the relationship between seasonal precipitation, April to September, the annual precipitation, the annual less the amount which falls in the summer time during June, July and August, and yield of all wheat based on planted acres. For spring wheat the seasonal considered is perhaps of significant importance. For winter wheat summer moisture is of little value and therefore has been deducted and the amount remaining has been as indicated by the broken line on the chart. Evidence shown indicates that since the last year of high precipitation in 1927, the wheat yields have decreased in greater proportion than the annual rainfall. Even during 1935, a fairly good year, the yield of wheat was less in proportion to the rainfall than was generally true previous to 1927. The soils in this area are very low in organic matter, and continuous cultivation tends to increase the activity of the soil organism which permits the plants to draw heavily upon the available fertility. This fact explains, at least in part, the change that is taking place in the decreasing ability of the land to sustain crop yields. Another very important factor in connection with the present problem is associated with the regularity and distribution of the precipitation throughout a particular year or over a period of years. The data in the chart indicate that out of a total





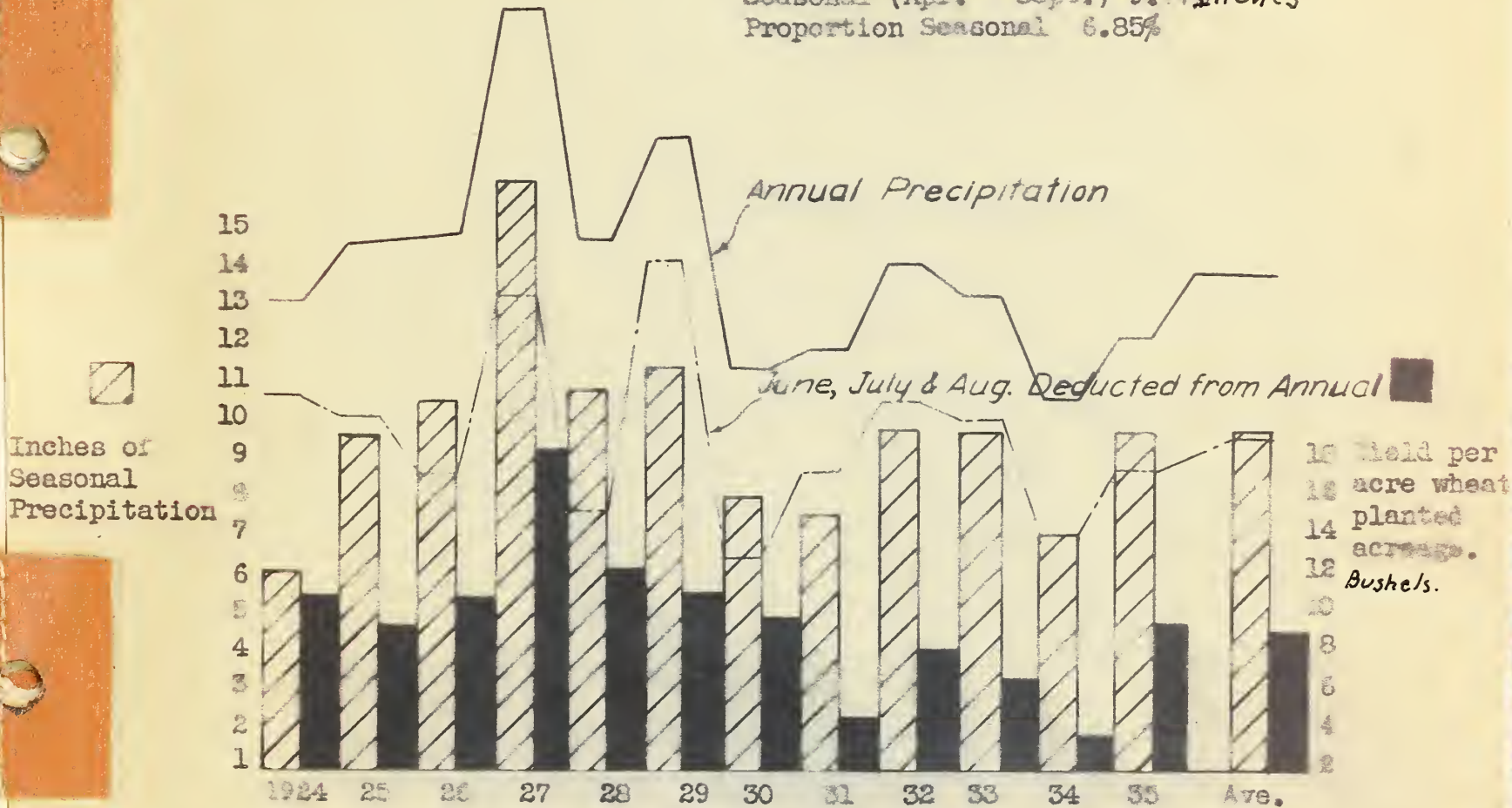
AVERAGE MONTHLY PRECIPITATION 1924 - 1935  
AT STATIONS IN AND NEAR CAMPBELL COUNTY

Table 1

Monthly Rainfall by Stations (Inches)

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
Rocky Point	100	.79	152	170	239	273	180	119	130	133	.83	.79	17.88
Gillette	.53	.37	121	168	241	187	146	108	112	129	.57	.52	14.04
Sheridan	.73	.60	144	243	235	179	.98	.77	122	161	.88	.61	15.36
Salt Creek	.47	.50	117	177	273	164	140	127	111	100	.66	.48	14.16
Hampshire	.53	.25	.59	.97	271	160	129	147	.86	.94	.35	.27	11.88
Ross	.27	.42	.68	100	246	219	133	110	.90	.96	.46	.19	12.00
Average	.59	.49	110	159	259	197	138	115	109	119	.63	.48	14.25

Average Annual 14.25 Inches  
Seasonal (Apr. - Sept.) 9.77 Inches  
Proportion Seasonal 6.85%



Monthly Rainfall by Years (Inches)

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
1924	.49	109	140	127	135	116	123	.64	.56	252	.85	107	13.63
1925	.36	.53	.59	222	236	274	.92	.75	.80	197	19	.73	14.66
1926	131	16	.51	.68	264	164	263	167	124	.90	.88	.41	14.67
1927	.48	.42	116	303	419	332	177	239	186	.98	.80	.58	20.98
1928	.64	.50	.80	.82	184	332	301	.98	.90	115	.84	.39	15.19
1929	.52	107	247	193	397	155	129	.80	197	.81	111	.33	17.82
1930	.50	.45	.61	104	152	164	149	193	.40	137	.40	.16	11.51
1931	.39	.34	139	.88	259	116	147	.45	117	119	.69	.21	11.93
1932	.88	.25	.96	260	288	215	.94	.75	.49	169	.48	.39	14.46
1933	.46	.34	143	197	387	.69	.39	168	115	.24	.53	.30	13.05
1934	.51	.26	107	122	.39	244	.75	.61	167	.90	.41	.66	10.89
1935	.10	.46	.90	146	388	182	.65	113	.81	.43	.35	.58	12.57

Source

Compiled 4/37

U.S. Weather Bureau.

Office State Land Planning Specialist

Bureau Of Livestock, crop Estimates.





of 144 months, 58 percent or 83 months were below the mean, and 42 percent or 61 months were above. While this difference is perhaps in itself significant, it becomes noticeably more so when the quantity of moisture is taken into consideration. During the period 1924-1935, the total precipitation for the 144 months at the six stations amounted of 17,136 inches. Of this quantity 6,226 inches or 36 percent occurred during the portion of the period below normal and 10,910 or 64 percent during the period above normal. Thus during the 12 year period, 64 percent of the total volume of moisture came during the period in which the monthly precipitation was above the mean only 42 percent of the time.

Another factor to be reckoned with in a study of rainfall on land use, is associated with the influence which the years of high precipitation have on crop production. There is always the exceptional year, either exceptionally high or exceptionally low. It seems, however, that the years of high precipitation have a greater tendency to increase the mean than the drought years have to lower it, if the same number of years are considered. The data shown for the six weather stations in or near Campbell County, indicate that the average rainfall for the months of high precipitation for all six stations, represent 18 percent of the annual mean, while the average for the months of low precipitation for all the stations represent less than 1 percent of the annual mean. The data in Table 1 show that in no place is the drought months as far below the mean as the extreme high is above the mean. The periods of sub-normal precipitation as indicated by the mean, however, occurs more frequently than the periods of heavy rainfall and therefore have, over a period of years, a greater influence on crop production and general land use. This evidence emphasizes and substantiates information to be discussed later in regard to the limitations that should be placed





on cash grain production in this area.

In addition to the type of farming being carried on, one of the most important factors frequently associated with desirable land use and mis-land use is concerned with ownership and tenure. Due principally to the inability of the soil to produce, in most cases, adequate crop yields and to the speculative features that were often a part of the development of the western portion of the Great Plains, absentee ownership of land has frequently become extensive and has been a factor which makes for undesirable land use practice. A high degree of non-resident owned land tends to contribute toward the development of an unstable agricultural community. A farm or ranch, organized on a basis of using certain non-resident owned lands, may be materially up-set if the right to their use is transferred to another operator. Among other things, this situation also tends to contribute toward the exploitation of the soil and plant cover. Unless the rancher or farmer, as an individual, is assured the use of such land over a period of years, sensible use is frequently the exception rather than the rule. The general feeling being to the effect that, "if I don't get the grass someone else will", and consequently the land is ruinously grazed. If, on the other hand, one of the absentee owners can not lease the land for an amount sufficient to pay the taxes, as has been often the case, delinquency of assessments result. Delinquent taxes may have and frequently have had a very undesirable influence on the County fiscal structure especially in school districts of low valuation. Delinquency in tax payment eventually increases the burden on resident operators as certain fixed County costs must be met and the levies or valuations must be increased to meet the situation. In general, also, it is almost axiomatic that an operator will take better care of land that he owns or lands over which he has





effective control, if by such ownership or control he can produce efficiently and economically. In order to permit long time desirable use of land in areas of low production capacity and diversified ownership, it may be necessary to provide for the development of grazing districts. The advantages of and the ability to effect desirable land use practice in areas of low potential production capacity in a manner generally satisfactory to the individual and to society as a whole, by the grazing district, has been demonstrated in other regions similar in many respects to Campbell County. In connection with the winter grazing of livestock, it is often necessary to have relatively large areas of range land available, in order to provide insurance against the possibility of having no pasture usable due to heavy snows. Variation in topography, wind and climate usually permit the moving of livestock to the areas from which snow has been removed by wind or is otherwise open, if the grazing area is relatively large. In areas of diversified ownership, Grazing Associations permit a situation whereby the undesirable influence which the small unit has on management can be effectively reduced.

Absentee ownership also tends to stimulate an increase in cultivation during periods of favorable rainfall. There is, as a rule, less thought given to conserving soil fertility or affecting erosion control practices on leased or non-resident land than on land locally owned and used. An operator will frequently put to speculative or exploitive use, on much less provocation in the form of rain or favorable wheat prices, land which he leases, than the land which he owns, especially if the livestock enterprise is being expanded. For this reason, extensive non-resident ownership in general acts a potential threat to sound land use and adjustment which has been effected. A few successful wheat crops, on such land,





can do much in a very short time to retard progressive tendencies toward a conservation of natural resources. In addition to these factors the presence of non-resident owned land permits thriftless families the possibility to move in where there are no schools, ask for a teacher, transportation or otherwise become a responsibility to the County. This situation not only tends to increase the financial burden of the school district but may become sufficiently frequent as to have an undesirable influence on the general morale of the neighborhood.

Absentee owned land also permits a greater degree of tenancy than is perhaps compatible with best land use practices. Many of the questions raised in connection with the sound development of natural resources under diversified ownership are also a problem in connection with diversified tenure. Both factors may contribute to the instability of an agricultural community. A landlord is often more desirous of securing the largest immediate return from the use of the land, than in establishing a well rounded out farm practice that will maintain fertility and control erosion. For this reason, wheat as a crop easily convertible into cash may be required in an acreage larger than is best suited to the soil conditions. Under a system of short term leases, the possibility of an adequate livestock enterprise is materially reduced. Such an enterprise on the small farm is especially important since it is about the only means of securing employment in the winter time. A respectable living can not be expected from a small operating unit even under the best of soil conditions unless there is opportunity for fairly substantial employment the year around. In this area this employment must be provided by the farm as there is at present a very limited opportunity to find work off the farm. Landlord-tenant relationships will never be wholly satisfactory until both parties and the communities recognize





and the undesirability of the frequent change caused by the short term lease and recognize the need to establish long time sound farm management practice that will maintain soil fertility, reduce and control erosion and otherwise conserve natural resourced.

and are substantially in the same manner as the short term  
- loans and deposits as they are available and the same for the  
- and are available for the same purpose, and are the same for the  
- purpose and are available for the same purpose.

PRESENT LAND USE  
CAMPBELL COUNTY WYOMING

The U.S. Department of the Interior, Land Classification Survey, distinguishes generally between five different classes of soil in this area. In Campbell County, which is fairly typical of the dry farm area in the whole of northeastern Wyoming, there is, by such a classification, 600 acres of irrigated land, 83,000 acres of second-grade dry-farm land, 1,088,000 acres of third-grade dry-farm land, and 1,810,400 acres of grazing land. In this survey, no land has been mapped as first-grade dry-farm land. The suggestion is made that while frequent small bodies of such land occur in the County the areas are small and widely dispersed. On a basis of this data approximately 3 percent of the land is classed as second-grade dry-farm land, while 36 percent and 61 percent as third-grade dry-farm land and grazing land.

A summary of the Agricultural Census data pertaining to land use in Campbell County is shown in the following table. The total crop land as indicated by these figures, represents a relatively small portion of the total area -- about 6 percent. The area of hay land, however, is subject to variation, depending to a considerable extent upon the amount of precipitation. During years of heavy rainfall a larger area is cut-over by the mowers than during a dry year. The native hay meadows lie along the streams and low places that have a tendency to receive the benefit of moisture run-off. If the precipitation is fairly heavy the land on which it is worth while to cut hay will expand and during a dry year it will be reduced. During extended drouth periods, frequently no hay is cut but the meadows are all used for pasture. Due to this fact, it is difficult to delimit the boundaries and therefore determine the area of such land. The situation is implied in the Census data referred to as there were





-15-  
AGRICULTURAL CENSUS  
CAMPBELL COUNTY  
Table 2

LAND AREA	1920	1925	1930	1935
Crop land total acres		113,290	192,098	182,346
Crop land harvested acres		88,179	157,546	45,025
Crop failure acres		14,060	11,714	82,237
Idle and fallow acres		11,051	22,838	55,082
Pasture Land Total acres		1,710,731	2,342,305	2,706,276
Plowable pasture acres		610,022	605,589	221,224
Woodland pasture acres		45,206	34,525	25,104
Other pasture acres		1,055,503	1,702,191	2,459,948
Other Land		34,975	26,352	18,880

GRAIN AND FORAGE CROPS

Corn total acres	3,911	23,082	28,222	5,666
Harvested for grain acres	1,018	7,648	9,369	1,879
Harvested for grain bushels	10,794	84,063	127,461	8,326
Grazed acres		10,671	17,307	3,787
Cut for silage & fodder acres	4,621	4,763	1,546	3,787
Wheat Threshed total acres	2,102	12,364	41,752	9,368
" " " bushels	5,409	130,956	482,027	51,103
Wheat winter acres			5,656	5,567
Wheat winter bushels			86,392	29,619
Wheat spring acres			36,096	3,801
Wheat spring bushels			395,635	21,484
Oats threshed total acres	253	7,594	13,765	789
" " " bushels	1,229	129,180	241,202	5,827
Barley threshed total acres	10	850	5,836	14
" " " bushels	10	10,848	82,885	3,842
Rye threshed total acres	508	555	1,382	758
" " " bushels	1,927	5,117	15,591	1,736
Flax threshed total acres		234	7,307	
" " " bushels		1,114	35,432	
Emmer and speltz total acres	20		1,865	
" " " " "	45		27,945	
Mixed grains total acres			982	20
" " " " "			13,725	72
Hay Crops Total Acres	18,614	39,053	51,884	26,439
Hay Crops Total Tons	9,317	35,313	54,582	13,993
Timothy & clover acres	2,269	349	415	60
" " " tons	2,488		410	60
Sweet Clover acres		348	957	41
" " " tons			874	41
Alfalfa acres	1,829	7,823	18,673	5,984
" " " tons	2,244		24,571	2,728
Other tame grasses acres	320	1,637	342	12,491
" " " " " tons	140		296	12,491
Wild grass hay acres	2,744	20,537	20,494	8,015
" " " " " tons	1,590		18,687	8,015
Small grain hay acres	8,756	11,028	11,003	7,766
" " " " " tons	2,796		9,694	3,160
Sorghum cut for feed acres				138
" " " " " tons				39
Grass Seeds				
Clover total acres			313	
" " " bushels			875	
Alfalfa total acres			2,959	
" " " bushels			4,904	





20,495 acres of hay crops in 1930 but only 9,015 in 1935.

The crop land, as shown by the Census, increased from 113,000 acres in 1925 to 192,000 in 1930 and decreased, principally because of the drought, to 182,000 in 1935. The influence of the drought which emphasises the submarginal aspect of much of the crop land is indicated by an increase of 70,500 acres in crop failure, a change of from 5 to 45 percent of the total area in crops. A previous reference to the rapid expansion in crops which occurred after the year 1920 is also substantiated by the data in the table. In that year there were, in Campbell County, only 25,418 acres of crops. By 1925 the acreage had more than trippled and by 1930 crops occupied six times more land than at the end of the previous decade. The drought of 1934 reduced the acreage to less than a third of the 1929 acreage but this area was still about double the area in 1920. The ratio of cultivated crops to hay crops has also changed materially during the period. In 1920 the area in hay crops represented 73 percent of the total. In 1925, 1930 and 1935 the proportion was 47, 34 and 61 percent respectively. These data indicate that a relatively significant acreage of sod was being turned under during the period 1920 to 1930.

According to the U.S.D.I. Land Classification, there is, as previously suggested, 82,000 acres of second-grade dry-farm land and according to the Agricultural Census data there is approximately 200,000 acres in crops in this County. These figures imply that 118,000 acres or about 60 percent of these crops are planted on third-grade dry-farm land. As a matter of fact the proportion is probably even larger since the operator of a small unit frequently finds it necessary to attempt to produce crops on inadequate land and as shown in the following discussion, the proportion of poor land seems to be greater on the small units than on the larger units. The following maps indicate, in a general way, the use





OFFICE OF STATE LAND PLANNING SPECIALIST MAY 5 '37



Comp  
Land

Land Pl





# CAMPBELL COUNTY

## U.S.D.I. LAND CLASSIFICATION



- SECOND GRADE DRY FARMING LAND
- THIRD GRADE DRY FARMING LAND
- GRAZING LAND PHYSICALLY TILLABLE
- GRAZING LAND

Type of ranching in vicinity  
 Dept. of Agriculture  
 University of Wyoming  
 Laramie, Wyo.

• = 2500 Sheep  
 • = 50 Cattle

-17-2

Compiled 4/37 Office State  
 Land Planning Specialist





OFFICE OF STATE AND PLANNING SPECIALIST MAY 5 '37

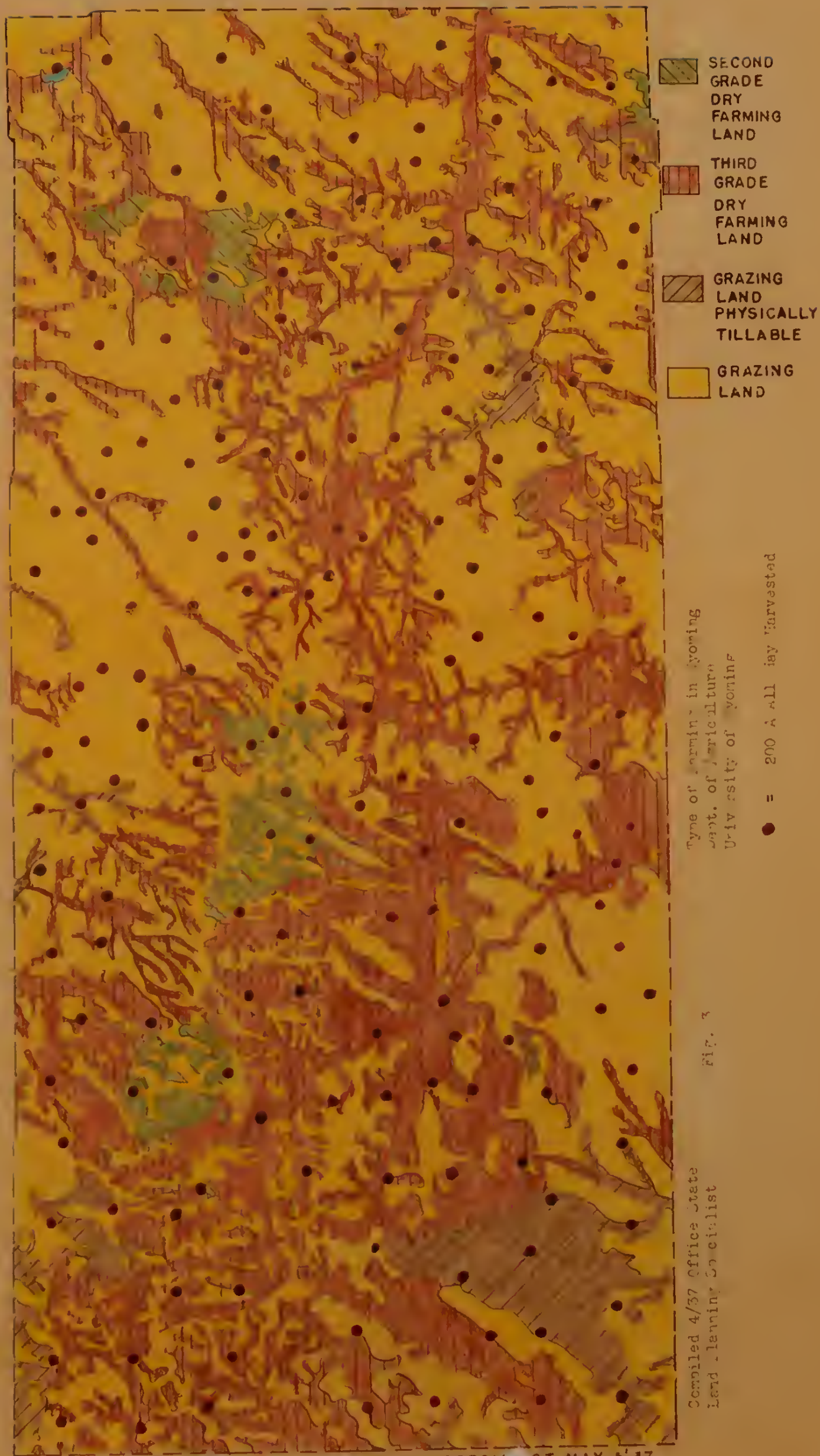
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Land Pl





# CAMPBELL COUNTY

## U.S. LAND CLASSIFICATION



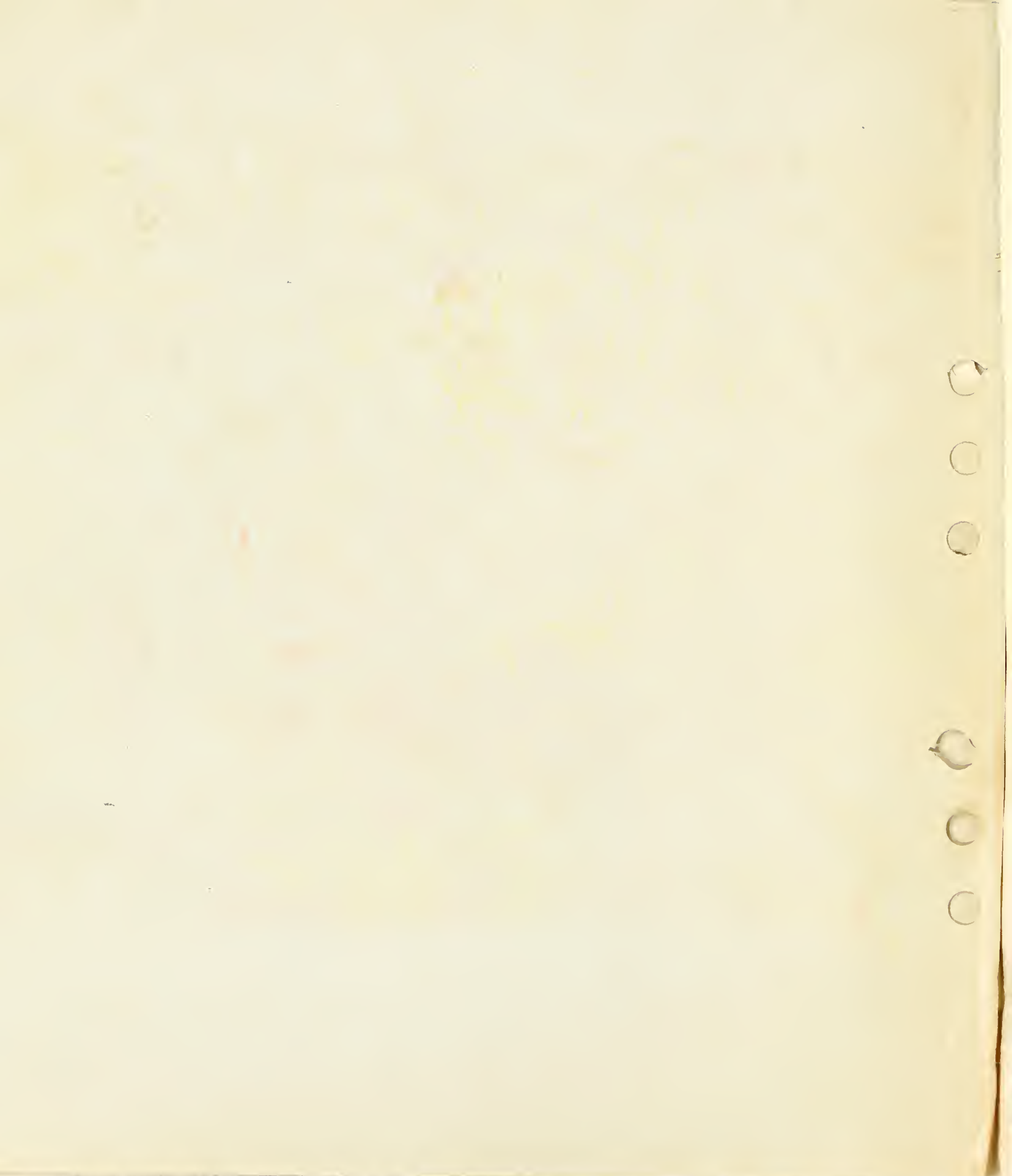


2000 0011. The following page contains the name of the person who was on the ship on the 11th of the month of the year 1900.



OFFICE OF STATE LAND PLANNING SPECIALIST MAY 5 '37

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THE UNIVERSITY OF CHICAGO PRESS  
CHICAGO, ILL. 60637  
1968

# CAMPBELL COUNTY

## U.S.D. LAND CLASSIFICATION



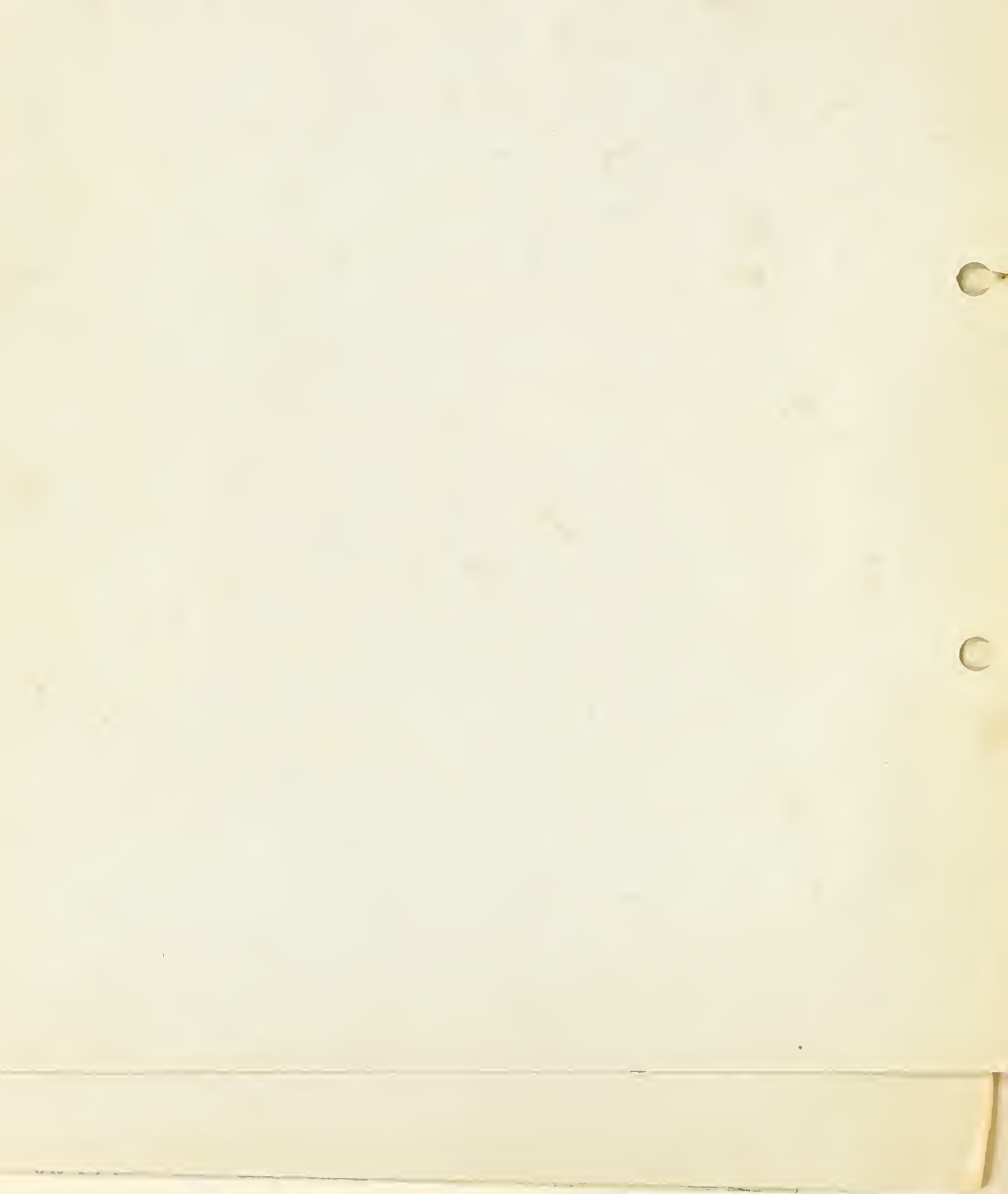
- SECOND GRADE DRY FARMING LAND
- THIRD GRADE DRY FARMING LAND
- GRAZING LAND PHYSICALLY TILLABLE
- GRAZING LAND

Fig. 4 Type of Farming in Wyoming  
 Dept. of Agriculture  
 University of Wyoming  
 B.A.E. = U.S.D.A.

• = 200 A Wheat Harvested  
 • = 200 A Corn Harvested

Compiled 4/37 Office State  
 Land Planning Specialist





that is being made of the land in this area. The data is based on the 1930 Census.

SUMMARY OF 1935 LAND USE SURVEY DATA  
CAMPBELL COUNTY

In order to be reasonably certain that the land use planning recommendations in this area are sound and in order to determine the results of practices associated with desirable land use and mis-land use, a detailed record of essentially all factors associated with farm operations were secured for 190 farms and ranches in various parts of Campbell County. In addition, a brief short form record, showing the more important factors associated with such land use, were secured from essentially the balance of the operating units in the County. To have the assurance that all types of topography and all types of farm and ranch organizations were considered in the detailed survey and to reduce the bias of selection, records from most of the operating units in a segment of two tiers of townships located in the east-west and central portion of the County and in four townships in the northwestern portion of the County where wheat is an important crop, were included as a detailed portion of a complete land use survey. The former and most important areas, as far as the detailed study is concerned, is located immediately south of the town of Gillette which is the County seat. The region can be described as being in Townships 48 - 49 N and Ranges 69 to 76 W. It should be noted, however, that the land included in many of the operating units extend beyond the limits of the particular township under consideration.

In order to make a brief analysis of factors associated with success or failure of farm and ranch operators, and in order to determine the

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DATE 08-28-2001 BY 60322 UCBAW



influence of size, the data secured in the land use survey has first been grouped with the size of the operating unit as the base. Since there is a wide extreme in size, the group interval has been so arranged as to indicate a proportionate change for each of the groups and is in this case in the nature of a geometric ratio. The influence, for example, of an increase of 320 acres in farms of less than one section is materially greater than the same increase in acreage would have on the operation of a farm of five or six sections. For this reason, the group intervals in the present study are in as close proportion as it is possible to achieve comparability without applying detailed technical statistical method. Five groups; 0 - 320 acres, 320 to 640 acres, 640 - 1280, 1280 - 2560, and above 2560 acres are used in the following brief analysis.

As would be expected, the size of the operating unit is a very important factor associated with successful farming. To be a self sustaining unit, the farm must be large enough to provide fairly constant employment throughout the year. A farm organization that supplies work for but a third of the time can not expect to have sufficient income to provide for the family. The type of farm operation carried on in this area is also generally considered to be a very extensive type. Under the best of conditions, yields are relatively low, and relatively large acreages of crops are required to produce an adequate return. Dry farming in Wyoming, is, as a rule, a speculative enterprise, which, to be successful, requires the highest type of management and organization. The influence of periodic drought necessitates a surplus either in funds or in feed. As the recent dry period has shown, a surplus carry-over of supplemental forage sufficient for three years, is occasionally necessary and this is obtainable only under the best type of organization. Equipment costs of operating a dry farm have been unusually high. Fre-



quent changes both in type of machinery used and in procedure and method are necessary to overcome such undesirable effects as soil blowing, erosion and reduction in natural fertility that comes about through constant cropping to commercial grain.

As the country grows older there is generally an increasing conception of the fact that stable agricultural communities in the dry farm areas of the State are becoming more and more dependent upon a diversified type of farm practice. Distances to shipping points, types of soil, small operating units, place very severe limitations upon intelligent commercial grain production. Diversification, however, means the production of more livestock on the smaller farms. Increased numbers of livestock on the smaller farms will frequently necessitate reduced numbers on the larger operating units, the development of a more adequate system of rotation grazing, and the development of a greater amount of supplementary feed. It can be and has been demonstrated, however, that a reduction in the number of livestock on the larger units need not, over a period of years, result in a reduction in income of these operators. The larger percentage of calves and lambs, the greater weight or gains of these calves and lambs made possible by increased amounts of feed made available because of the reduced numbers in the breeding herds, the reductions in feed and labor costs and other management factors all tend to off-set the influence which reduction in numbers have on income. In addition there is increased opportunity to stabilize the agricultural community as such a situation will provide for greater erosion control practices, larger acreages of soil conserving crops and other conditions that will make it much easier to carry over an adequate and necessary surplus of feed.

The diversity of a farm practice that is well adapted to any particular





situation in Campbell County will depend first on the production capacity of the soil which is essentially a function of climate and second to the distance from the railroad or shipping point. Present road facilities will not, as a rule, permit economical production of cash grain at a distance greater than thirty to forty miles from the shipping point regardless of the soil conditions. On the other hand, soil and topography may eliminate wheat as a cash crop in areas that are very close to the storage elevators. Since there is very little land in this area that, under normal conditions, is submarginal to the production of cattle or sheep and a relative small acreage that is not sub-marginal to continuous cash grain production, the livestock enterprise becomes the center around which a large number of the farms and ranches must be organized. This does not mean that range cattle and sheep are all that should be considered. In fact the small operating unit that has little opportunity to secure additional acreage must consider thoroughly the development of a livestock project around dairy cattle or swine or poultry or fitting combinations of two or three. The solution of many of the problems of the small operating unit, if the operator is to remain in the area, will depend in a great many cases on the owner's ability to take full advantage of these livestock enterprises. When located near a town or a mail route the farmer should attempt to provide the maximum of the income made possible through the production of milk or butterfat. In this area it is frequently desirable to give consideration to the production of dual purpose cattle as this will permit a satisfactory return in the form of both a calf and dairy products. When butterfat is sold, a few hogs or a few hens or turkeys should be on hand to use the skim milk. If this enterprise chosen is made up by chickens, effort should be made to get the best possible egg production as the marketing coincides well with the





delivery of butterfat. In all cases these enterprises should be developed so as to provide work in the winter time. Care should be exercised to be certain that the recommendations are sound and practical. High production dairy cows will have no place on a farm that is located 40 miles from a town or shipping point, and a farm that will and should require that a large portion of the feed be roughages and pasture. A dairy cow livestock enterprise may be completely out of place on even the small farm that is located 30 or 40 miles from a town or railroad and yet a mile or so from the mail route by which delivery will be made. In fact the land use problem most difficult of solution are often associated with small operating units located on poor soil and so situated as to make impractical the marketing of dairy and poultry products. The problem is emphasized when it becomes known that a minimum self-sustaining operating unit, organized on the basis of range livestock production, is approximately six sections of land. This acreage is necessitated since a range livestock enterprise is the only alternative and the land has a carrying capacity of only 16 to 20 animal units per section. The average income over a period of years has been around \$18 per cattle unit or \$325 per section. This would provide a gross return of approximately \$2000. If advantage is taken of the opportunity to provide additional income by the sale of butterfat and poultry products and sensible effort is made in the general management of business affairs, a sum to the extent of about \$1000 above cash operating costs can be available for interest charges and family living.

If a portion of the farm land of about 100 to 150 acres is adequately adapted and other situations are economically feasible for the production of wheat, a similar self-sustaining organization can be developed on



approximately three sections of land. <sup>4/</sup>Information showing the budget of such operating units were submitted in L.U. 30 and are included as a supplement to this report. The diversion, however, points briefly to some of the general relationships which the size of the operating unit may have in affecting undesirable land use practice. Information secured in the land use survey study substantiates these general conclusions and also supplies a necessary basis for an analysis of problems peculiar to northeastern Wyoming. A summary of such data pertaining to the operation of a group of farms and ranches in Campbell County in 1935 is given in the following discussion.

Preliminary Summary of Detailed Schedules  
Arranged by Size of Operating Unit

Reference to Table 3 following shows that a group of 153 farms, operating a little less than  $1\frac{1}{2}$  sections, had a farm income of only \$347, while 37 farms of almost eleven sections, had a farm income of \$2105. After farm expenses and interest on borrowed capital was paid there was left an average of \$276 for family living in the former group and \$1763 in the latter. The group of farms with an average of only 278 acres in the operating unit had only \$79 left for living expenses, farms of 538 acres had \$192, those of 998 acres had \$382 and those of 1830 acres only \$336. It is interesting to note that the farm income was slightly larger for those farmers having 998 acres in the operating unit than it was for the next larger group of farmers that were operating 1830 acres. This is explained by the fact that farms in the latter group were attempting to operate on the basis of a livestock enterprise but the unit was too small to permit an adequate number of productive animals. To be self-sustaining on an operating unit of 1830 acres, the

<sup>4/</sup>Refer to pages 118 to 122.





LAND USE SURVEY  
SUMMARY OF DETAILED SCHEDULES  
INVESTMENT AND INCOME FOR FAMILY LIVING  
Table 3

Item	Size of Operating Units				
	0-320 Acres	320-640 Acres	640-1280 Acres	1280-2560 Acres	2560 A and Above
Number of Farms	17	47	45	44	37
Acres Per Farm	278	538	998	1830	7522
Investment Ratio:					
Land	\$ 725	\$1179	\$2025	\$2166	\$8896
Percent of Total	28	29	33	27	32
Buildings	\$1055	\$1396	\$1716	\$ 1670	\$5033
Percent of Total	41	35	28	21	18
Equipment	\$ 333	\$ 472	\$ 796	\$ 737	\$1192
Percent of Total	13	11	13	9	4
Livestock	\$ 437	\$ 964	\$1499	\$3321	\$12166
Percent of Total	17	24	24	41	44
Feed and Supplies	\$ 43	\$ 87	\$ 144	\$ 162	\$ 615
Percent of Total	2	2	2	2	2
Borrowed Capital	\$ 493	\$ 811	\$1306	\$1406	\$5777
Percent of Total	19	20	21	17	21
Owned Capital	\$2100	\$3283	\$4874	\$6660	\$22125
Percent of Total	81	80	79	83	79
Total Investment	\$2593	\$4094	\$6180	\$8066	\$27902
Farm Income	\$ 109	\$ 236	\$ 456	\$ 446	\$2105
Interest Paid	\$ 30	\$ 44	\$ 74	\$ 110	\$ 342
Income for Family Living	\$ 79	\$ 192	\$ 382	\$ 336	\$1763
Unpaid Family Labor	\$ 23	\$ 45	\$ 23	\$ 57	\$ 98
Operator's Income	\$ 56	\$ 147	\$ 399	\$ 279	\$1665
Interest Allowed on Investment	\$ 107	\$ 175	\$ 246	\$ 303	\$1075
Labor Income	\$- 51	\$ -28	\$ 113	\$ -24	\$ 590
Capital Reductions Allowed*	\$ 118	\$ 106	\$ 185	\$ 174	\$ 185

\*Net inventory decrease that may be used for living expense but represents liquidation of capital.





situation in this area will require that a larger portion of the farm sales be from livestock products and crops than shown in the present group of farms. Farms of this size, by economic necessity, are forced to carry on a certain amount of commercial grain production, even where soil conditions are not well suited to such a program. The production of crops, consumes considerable more labor, even under an extensive system of farming, then can be used in a livestock program, if the same amount of land is considered. Even though the operating unit be very small, crop production provides a greater opportunity for work than does livestock production, <sup>THIS</sup> a factor ~~that~~ accounts for the somewhat larger return, ~~in this case,~~ for the farms having the smaller acreage. In fact a situation is thus illustrated that tends to promote mis-land use. The opportunity to work even though frequently for very low wages, but with the chance (if it should rain) of making a relatively large profit, provides an additional stimulus over economic necessity for the larger wheat acreage on the smaller units.

As would be expected the data in Table 4 show a fairly constant increase in the proportion of receipts from livestock and a decrease from crops as the number of acres in the operating unit become larger. This factor varies from 19 to 62 percent for livestock and 33 to 7 percent for crops. There is little relationship noted for livestock products since the smaller farms have a return from dairy and poultry products and the large farms from wool in more or less the same proportion.

The average gross income of these various groups of farms and ranches varies from \$482 for the farms with small acreages to \$5386 for the ranches with large acreages. The 153 farms and ranches in the first four groups with an average of 1016 acres in the operating unit had a gross return of only \$1081, while the 37 farms and ranches with



LAND USE SURVEY  
SUMMARY OF DETAILED SCHEDULES  
FARM INCOME AND EXPENSES

Table 4

Item	Size of Operating Units				
	0-320 Acres	320-640 Acres	640-1280 Acres	1280-2560 Acres	2560 A & Above
Number of Farms	17	47	45	44	37
Acres Per Farm	278	538	998	1830	7522
Current Income:					
Livestock	\$ 61	\$ 156	\$ 468	\$ 814	\$2501
Percent of Total	13	21	38	53	46
Livestock Products	\$ 76	\$ 185	\$ 166	\$ 188	\$1454
Percent of Total	16	24	14	12	27
Crops	\$ 161	\$ 215	\$ 357	\$ 263	\$ 356
Percent of Total	33	28	29	17	7
Outside Labor	\$ 100	\$ 23	\$ 46	\$ 1	\$ 8
Percent of Total	21	3	4	0	0
Benefit Payments Wheat-Corn-Hog	\$ 19	\$ 45	\$ 60	\$ 75	\$ 28
Percent of Total	4	6	5	5	1
Miscellaneous	\$ 10	\$ 4	\$ 14	\$ 18	\$ 24
Percent of Total	2	0	1	1	0
Inventory Increase:					
Livestock	\$ 29	\$ 82	\$ 20	\$ 64	\$ 881
Percent of Total	6	11	2	4	16
Feed and Supplies	\$ 26	\$ 49	\$ 86	\$ 96	\$ 134
Percent of Total	5	7	7	6	3
Total Income	\$ 482	\$ 759	\$1217	\$1519	\$5386



10-11

LAND USE SURVEY  
SUMMARY OF DETAILED SCHEDULES

Table 4 Continued

FARM INCOME AND EXPENSES

Current Operating Expense					
Hired Labor	\$ 22	\$ 42	\$ 74	\$ 87	\$ 860
Percent of Total	6	9	10	8	26
Property Tax	\$ 31	\$ 38	\$ 63	\$ 98	\$ 329
Percent of Total	8	7	8	9	10
Land Rent	\$ 2	\$ 20	\$ 30	\$ 78	\$ 269
Percent of Total	1	4	4	7	8
Equipment Expense	\$ 58	\$ 95	\$ 128	\$ 171	\$ 301
Percent of Total	16	19	17	16	9
Improvement Expense	\$ 11	\$ 8	\$ 20	\$ 17	\$ 40
Percent of Total	3	2	3	2	1
Feed and Seeds	\$ 36	\$ 41	\$ 63	\$ 107	\$ 624
Percent of Total	10	8	8	10	19
Livestock Purchases					
Cattle	\$ 12	\$ 5	\$ 20	\$ 83	\$ 185
Percent of Total	3	1	3	8	6
Sheep	\$ 0	\$ 7	\$ 0	\$ 4	\$ 70
Percent of Total	0	2	0	0	2
Horses	\$ 0	\$ 3	\$ 11	\$ 9	\$ 14
Percent of Total	0	0	1	1	0
Swine	\$ 1	\$ 5	\$ 4	\$ 1	\$ 1
Percent of Total	0	1	1	0	0
Turkeys-Poultry	\$ 0	\$ 0	\$ 0	\$ 0	\$ 2
Percent of Total	0	0	0	0	0
New Machinery	\$ 7	\$ 54	\$ 70	\$ 132	\$ 119
Percent of Total	2	11	9	12	4
Inventory Decrease:					
Equipment	\$ 69	\$ 62	\$ 141	\$ 100	\$ 121
Percent of Total	18	12	18	9	4
Buildings	\$ 49	\$ 44	\$ 44	\$ 74	\$ 64
Percent of Total	13	9	6	7	2
Miscellaneous	\$ 75	\$ 76	\$ 92	\$ 122	\$ 282
Percent of Total	20	15	12	11	9
Total Expenses	\$ 373	\$ 500	\$ 760	\$1083	\$3281





7522 acres in the operating unit had a gross return of \$5386. A gross income of only \$1000 is obviously too small a sum to pay operating costs and yet have a sufficient amount left for the family. While it is true that full advantage is frequently not taken of opportunities on the farm, the better operator is confronted with a difficult problem when he has found it inadvisable to continue the attempt to grow a cash grain crop. Funds are not at hand or available to purchase additional land and the larger operator, by virtue of greater purchasing power, will usually gain control of available leases, <sup>there is</sup> the only means available, as a rule, for increasing the size of the unit.

A study of information at hand indicates that a change in the yield of all crops in Campbell County are fairly comparable to the change which has taken place in wheat as shown in Table 1. There has been a consistent and almost drastic downward trend in yield during the last ten years. This situation has increased the difficulties on the small farm to a greater extent than on the larger units, since in the former case a considerably greater proportion of income and effort has been associated with the production of crops. The information shown in Table 5 is probably fairly typical of the general situation in Campbell County in 1935. The data evidences the fact that 32 percent of the acreage of small farms was in crops compared to only 3 percent of the acreage of the largest farms. The average yield of wheat produced by the 190 farms included in the present survey was approximately 8 bushels per acre. The average for the County as given by the Federal Crop Estimating Service was 9.3 bushels per acre.

The data summarized in Table 6 show the kind, the acres and the production per farm of various crops, grouped by size of operating unit, for the 190 farms and ranches included in the present study. The



LAND USE SURVEY

SUMMARY OF DETAILED SCHEDULES

LAND USE AND MANAGEMENT

Table 5

Item	Size of Operating Units				
	0-320 Acres	320-640 Acres	640-1280 Acres	1280-2560 Acres	2560 Acres and Above
Average Crops Acres	89	139	184	180	223
Average Pasture Acres	189	399	814	1650	7299
Average No. Acres Per Farm	278	538	998	1830	7522
Proportion in Crops	32	26	19	9	3
Total Animal Units	9	21	32	56	237
Man Equivalent	1.08	1.16	1.16	1.35	2.00
P. W. U. Per Farm*	130	208	210	264	394
P. W. U. Crops	99	136	148	137	107
P. W. U. Livestock	22	43	33	58	89
P. W. U. Per Man	121	179	181	195	196
Crop Acres Per Man	82	120	159	133	112
Pasture Acres Per Man	175	344	702	1222	3649

\*Productive Work Units; P. W..U. equals one man working one day.





LAND USE SURVEY  
SUMMARY OF DETAILED SCHEDULES  
CROP PRODUCTION  
Table 6

	Acres per Farm	Yield Per Acre	Farm Production	Average Yield*	Index of Crop Production
OPERATING UNITS 278 ACRES					
Alfalfa and Wild Hay	9.50	.63	6.00	.71	89
Thistle Hay	2.20	.39	.88	.65	61
Grain Hay	4.90	.51	2.50	.76	66
Oats	5.20	6.69	34.60	7.37	91
Barley	6.50	14.41	94.10	10.81	133
Corn Grain	19.50	4.05	79.00	4.41	92
Corn Fodder	.60	.50	.30	1.99	30
Winter Wheat	3.10	4.69	14.40	11.81	40
Spring Wheat	17.90	5.24	111.90	7.68	81
Rye	.30	3.00	.90	5.74	60
Total or Average	70.00				87
Fallow or Idle	1.20				
OPERATING UNITS 538 ACRES					
Alfalfa and Wild Hay	11.70	.59	7.06	.71	83
Thistle Hay	1.44	.71	.87	.65	109
Grain Hay	8.13	.72	5.85	.76	95
Oats	7.20	5.38	38.81	7.37	73
Barley	1.70	8.76	14.72	10.81	81
Corn Grain	18.00	3.74	67.23	4.41	85
Corn Fodder	3.00	.44	1.25	1.99	22
Winter Wheat	5.40	11.59	62.87	11.81	98
Spring Wheat	62.00	6.30	390.22	7.68	82
Rye	1.40	14.13	19.23	5.74	245
Total or Average	120.00				84
Fallow or Idle	.40				
OPERATING UNITS 998 ACRES					
Alfalfa and Wild Hay	11.38	.71	8.02	.71	99
Thistle Hay	2.76	.61	1.69	.65	94
Grain Hay	9.13	.68	6.18	.76	89
Oats	7.54	9.80	73.80	7.27	133
Barley	2.29	7.57	17.33	10.81	70
Corn Grain	21.18	7.68	162.73	4.41	174
Corn Fodder	3.76	.54	2.04	1.99	27
Winter Wheat	2.13	2.90	6.18	11.81	25
Spring Wheat	62.28	7.54	469.66	7.68	98
Rye	3.31	4.87	16.11	5.74	85
Total or Average	125.75				108
Fallow or Idle	1.30				

\*Average yield of all crops, for which survey data was available.



Index of Production	1937 = 100	1938 = 100	1939 = 100	1940 = 100	1941 = 100
1. All Industries	100.0	100.0	100.0	100.0	100.0
2. Manufacturing	100.0	100.0	100.0	100.0	100.0
3. Construction	100.0	100.0	100.0	100.0	100.0
4. Commerce	100.0	100.0	100.0	100.0	100.0
5. Finance	100.0	100.0	100.0	100.0	100.0
6. Government	100.0	100.0	100.0	100.0	100.0
7. Agriculture	100.0	100.0	100.0	100.0	100.0
8. Transportation	100.0	100.0	100.0	100.0	100.0
9. Communication	100.0	100.0	100.0	100.0	100.0
10. Public Administration	100.0	100.0	100.0	100.0	100.0
11. Education	100.0	100.0	100.0	100.0	100.0
12. Health	100.0	100.0	100.0	100.0	100.0
13. Recreation	100.0	100.0	100.0	100.0	100.0
14. Social Services	100.0	100.0	100.0	100.0	100.0
15. Other	100.0	100.0	100.0	100.0	100.0
16. Total	100.0	100.0	100.0	100.0	100.0
17. All Industries	100.0	100.0	100.0	100.0	100.0
18. Manufacturing	100.0	100.0	100.0	100.0	100.0
19. Construction	100.0	100.0	100.0	100.0	100.0
20. Commerce	100.0	100.0	100.0	100.0	100.0
21. Finance	100.0	100.0	100.0	100.0	100.0
22. Government	100.0	100.0	100.0	100.0	100.0
23. Agriculture	100.0	100.0	100.0	100.0	100.0
24. Transportation	100.0	100.0	100.0	100.0	100.0
25. Communication	100.0	100.0	100.0	100.0	100.0
26. Public Administration	100.0	100.0	100.0	100.0	100.0
27. Education	100.0	100.0	100.0	100.0	100.0
28. Health	100.0	100.0	100.0	100.0	100.0
29. Recreation	100.0	100.0	100.0	100.0	100.0
30. Social Services	100.0	100.0	100.0	100.0	100.0
31. Other	100.0	100.0	100.0	100.0	100.0
32. Total	100.0	100.0	100.0	100.0	100.0
33. All Industries	100.0	100.0	100.0	100.0	100.0
34. Manufacturing	100.0	100.0	100.0	100.0	100.0
35. Construction	100.0	100.0	100.0	100.0	100.0
36. Commerce	100.0	100.0	100.0	100.0	100.0
37. Finance	100.0	100.0	100.0	100.0	100.0
38. Government	100.0	100.0	100.0	100.0	100.0
39. Agriculture	100.0	100.0	100.0	100.0	100.0
40. Transportation	100.0	100.0	100.0	100.0	100.0
41. Communication	100.0	100.0	100.0	100.0	100.0
42. Public Administration	100.0	100.0	100.0	100.0	100.0
43. Education	100.0	100.0	100.0	100.0	100.0
44. Health	100.0	100.0	100.0	100.0	100.0
45. Recreation	100.0	100.0	100.0	100.0	100.0
46. Social Services	100.0	100.0	100.0	100.0	100.0
47. Other	100.0	100.0	100.0	100.0	100.0
48. Total	100.0	100.0	100.0	100.0	100.0



LAND USE SURVEY  
SUMMARY OF DETAILED SCHEDULES  
CROP PRODUCTION  
Table 6

(Continued)

	Acres Per Farm	Yield Per Acre	Farm Production	Average Yield*	Index of Crop Production
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OPERATING UNITS 1830 ACRES

Alfalfa and Wild Hay	24.70	.67	16.47	.71	94
Thistle Hay	5.70	.71	4.00	.65	109
Grain Hay	23.40	.73	17.20	.76	97
Oats	5.90	11.03	65.11	7.37	150
Barley	1.00	19.23	19.22	10.81	177
Corn Grain	21.45	2.66	57.13	4.41	60
Corn Fodder	4.39	5.70	24.73	1.99	286
Winter Wheat	4.54	17.39	79.04	11.81	147
Spring Wheat	43.00	6.63	285.00	7.68	86
Rye	6.24	3.67	23.00	5.74	64
Total or Average	140.27				97
Fallow or Idle	.90				

OPERATING UNITS 7552 ACRES

Alfalfa and Wild Hay	115.30	.75	86.70	.71	106
Thistle Hay	.30	.50	.20	.65	80
Grain Hay	20.60	.89	18.40	.76	117
Oats	4.80	1.53	7.30	7.37	21
Barley	.90	2.97	2.80	10.81	29
Corn Grain	10.50	2.37	24.90	4.41	54
Corn Fodder	3.90	.35	1.40	1.99	17
Winter Wheat	4.50	12.83	57.60	11.81	108
Spring Wheat	37.40	12.61	471.00	7.68	164
Rye	2.30	7.68	17.80	5.74	137
Total or Average	200.40				111
Fallow or Idle	.60				

\*Average yield of all crops, for which survey data was available.

1940-1941  
 SUMMARY OF  
 AGRICULTURAL  
 PRODUCTION

(Continued)

Product	Value	Quantity	Price	Value	Quantity
Wheat	10.00	100.00	10.00	10.00	100.00
Barley	5.00	50.00	5.00	5.00	50.00
Oats	3.00	30.00	3.00	3.00	30.00
Rye	4.00	40.00	4.00	4.00	40.00
Triticum	6.00	60.00	6.00	6.00	60.00
Speltz	7.00	70.00	7.00	7.00	70.00
Millet	2.00	20.00	2.00	2.00	20.00
Buckwheat	1.00	10.00	1.00	1.00	10.00
Sorghum	8.00	80.00	8.00	8.00	80.00
Amaranth	9.00	90.00	9.00	9.00	90.00
Quinoa	1.50	15.00	1.50	1.50	15.00
Amaranth	2.50	25.00	2.50	2.50	25.00
Buckwheat	3.50	35.00	3.50	3.50	35.00
Sorghum	4.50	45.00	4.50	4.50	45.00
Amaranth	5.50	55.00	5.50	5.50	55.00
Quinoa	6.50	65.00	6.50	6.50	65.00
Amaranth	7.50	75.00	7.50	7.50	75.00
Buckwheat	8.50	85.00	8.50	8.50	85.00
Sorghum	9.50	95.00	9.50	9.50	95.00
Amaranth	10.50	105.00	10.50	10.50	105.00
Quinoa	11.50	115.00	11.50	11.50	115.00
Amaranth	12.50	125.00	12.50	12.50	125.00
Buckwheat	13.50	135.00	13.50	13.50	135.00
Sorghum	14.50	145.00	14.50	14.50	145.00
Amaranth	15.50	155.00	15.50	15.50	155.00
Quinoa	16.50	165.00	16.50	16.50	165.00
Amaranth	17.50	175.00	17.50	17.50	175.00
Buckwheat	18.50	185.00	18.50	18.50	185.00
Sorghum	19.50	195.00	19.50	19.50	195.00
Amaranth	20.50	205.00	20.50	20.50	205.00
Quinoa	21.50	215.00	21.50	21.50	215.00
Amaranth	22.50	225.00	22.50	22.50	225.00
Buckwheat	23.50	235.00	23.50	23.50	235.00
Sorghum	24.50	245.00	24.50	24.50	245.00
Amaranth	25.50	255.00	25.50	25.50	255.00
Quinoa	26.50	265.00	26.50	26.50	265.00
Amaranth	27.50	275.00	27.50	27.50	275.00
Buckwheat	28.50	285.00	28.50	28.50	285.00
Sorghum	29.50	295.00	29.50	29.50	295.00
Amaranth	30.50	305.00	30.50	30.50	305.00
Quinoa	31.50	315.00	31.50	31.50	315.00
Amaranth	32.50	325.00	32.50	32.50	325.00
Buckwheat	33.50	335.00	33.50	33.50	335.00
Sorghum	34.50	345.00	34.50	34.50	345.00
Amaranth	35.50	355.00	35.50	35.50	355.00
Quinoa	36.50	365.00	36.50	36.50	365.00
Amaranth	37.50	375.00	37.50	37.50	375.00
Buckwheat	38.50	385.00	38.50	38.50	385.00
Sorghum	39.50	395.00	39.50	39.50	395.00
Amaranth	40.50	405.00	40.50	40.50	405.00
Quinoa	41.50	415.00	41.50	41.50	415.00
Amaranth	42.50	425.00	42.50	42.50	425.00
Buckwheat	43.50	435.00	43.50	43.50	435.00
Sorghum	44.50	445.00	44.50	44.50	445.00
Amaranth	45.50	455.00	45.50	45.50	455.00
Quinoa	46.50	465.00	46.50	46.50	465.00
Amaranth	47.50	475.00	47.50	47.50	475.00
Buckwheat	48.50	485.00	48.50	48.50	485.00
Sorghum	49.50	495.00	49.50	49.50	495.00
Amaranth	50.50	505.00	50.50	50.50	505.00
Quinoa	51.50	515.00	51.50	51.50	515.00
Amaranth	52.50	525.00	52.50	52.50	525.00
Buckwheat	53.50	535.00	53.50	53.50	535.00
Sorghum	54.50	545.00	54.50	54.50	545.00
Amaranth	55.50	555.00	55.50	55.50	555.00
Quinoa	56.50	565.00	56.50	56.50	565.00
Amaranth	57.50	575.00	57.50	57.50	575.00
Buckwheat	58.50	585.00	58.50	58.50	585.00
Sorghum	59.50	595.00	59.50	59.50	595.00
Amaranth	60.50	605.00	60.50	60.50	605.00
Quinoa	61.50	615.00	61.50	61.50	615.00
Amaranth	62.50	625.00	62.50	62.50	625.00
Buckwheat	63.50	635.00	63.50	63.50	635.00
Sorghum	64.50	645.00	64.50	64.50	645.00
Amaranth	65.50	655.00	65.50	65.50	655.00
Quinoa	66.50	665.00	66.50	66.50	665.00
Amaranth	67.50	675.00	67.50	67.50	675.00
Buckwheat	68.50	685.00	68.50	68.50	685.00
Sorghum	69.50	695.00	69.50	69.50	695.00
Amaranth	70.50	705.00	70.50	70.50	705.00
Quinoa	71.50	715.00	71.50	71.50	715.00
Amaranth	72.50	725.00	72.50	72.50	725.00
Buckwheat	73.50	735.00	73.50	73.50	735.00
Sorghum	74.50	745.00	74.50	74.50	745.00
Amaranth	75.50	755.00	75.50	75.50	755.00
Quinoa	76.50	765.00	76.50	76.50	765.00
Amaranth	77.50	775.00	77.50	77.50	775.00
Buckwheat	78.50	785.00	78.50	78.50	785.00
Sorghum	79.50	795.00	79.50	79.50	795.00
Amaranth	80.50	805.00	80.50	80.50	805.00
Quinoa	81.50	815.00	81.50	81.50	815.00
Amaranth	82.50	825.00	82.50	82.50	825.00
Buckwheat	83.50	835.00	83.50	83.50	835.00
Sorghum	84.50	845.00	84.50	84.50	845.00
Amaranth	85.50	855.00	85.50	85.50	855.00
Quinoa	86.50	865.00	86.50	86.50	865.00
Amaranth	87.50	875.00	87.50	87.50	875.00
Buckwheat	88.50	885.00	88.50	88.50	885.00
Sorghum	89.50	895.00	89.50	89.50	895.00
Amaranth	90.50	905.00	90.50	90.50	905.00
Quinoa	91.50	915.00	91.50	91.50	915.00
Amaranth	92.50	925.00	92.50	92.50	925.00
Buckwheat	93.50	935.00	93.50	93.50	935.00
Sorghum	94.50	945.00	94.50	94.50	945.00
Amaranth	95.50	955.00	95.50	95.50	955.00
Quinoa	96.50	965.00	96.50	96.50	965.00
Amaranth	97.50	975.00	97.50	97.50	975.00
Buckwheat	98.50	985.00	98.50	98.50	985.00
Sorghum	99.50	995.00	99.50	99.50	995.00
Amaranth	100.50	1005.00	100.50	100.50	1005.00

The value of all crops for which data are available.



first group of farms having less than a half section in the operating unit were farming approximately 70 acres of which 85 percent were cultivated crops. Their index of yield was only 87 percent of the average of all the farms. The second group of farms with an average of ~~one and a third section~~ <sup>538 acres</sup> in the operating unit were farming 120 acres of which 90 percent was in grain and corn and the index of yield was 16 percent below the average. It is interesting to note that these two groups of farms to be self-sustaining would, under normal conditions, have to depend largely on crops, were securing yields essentially 15 percent below the average of all farms included in the study. These operators were evidently either attempting to farm extremely submarginal crop land or were themselves submarginal in managerial ability. It is significant to note that they represent almost 30 percent of the total included in the study. They also represent the important problem in the problem areas and in land use planning generally. The middle two groups of farms having an average of about two sections in the operating unit had 133 acres in crops of which 90 percent was cultivated. However, 24 percent of the total acreage in the operating unit in the former group of farms was in cultivated crops, compared to 3 percent in the latter group. The yields obtained in this group were also 5 percent above the average which indicates that although they were operating a relatively small farm they were making a more successful attempt to become self sustaining. The last group of farms having the largest operating units were fairly well organized. Except for the problems associated with the use of the range lands, they account for a rather small proportion of the concern in land use planning.

Even though the small dry farm is, as a rule, at a distinct disadvantage in developing opportunities, there are a few operators in





this group that have managed to make operating expenses and still have something left for the family. One of the important reasons for being able to do this is associated with ability and desire to take advantage of a dairy and poultry enterprise and to take advantage of work off the farm. A survey of the preliminary tabulations in the present study indicate that in the first group of 17 farms, four had \$555 as income for family living, in the second group of 47 farms 18 had \$713, in the third group 28 out of a total of 44 farms had \$701, and 23 in the fourth group of 44 had \$813 for living expenses. Thus virtually half of the total number of farms in the first four groups had an average of \$731 and none had less than \$250. If \$400 is set as the lower minimum which a family should have available for living after all farm operating costs including interest on borrowed capital have been paid, data in regard to the 153 farms under consideration indicates that 56 or about a third would have this amount but the average for all of them would be \$868. It should be further noted that an adequate acreage does not always provide a sufficient income for the family. Seven out of the 37 farms in the group having the largest acreage had nothing left for personal living expense after necessary operating costs were deducted from the gross receipts. The reason for this, in most cases, has been due to an inability to make immediate adjustment to changed conditions caused largely by the drought. These farms can be rehabilitated, as a rule, by credit facilities and as a consequence do not present a serious problem.

Referring again to Table 3 it can be seen that as far as the data secured in this particular study is concerned the only group of farms showing substantial returns are those with the large acreages in the operating unit. In computing these figures, it should be remembered that ordinary farm accounting procedure was followed. This means that





a reasonable allowance has been made for depreciation and obsolescence in equipment and improvements. In case of absolute necessity these amounts can be used for personal living expenses for a short period of years. Such use will mean, however, a liquidation of capital, a factor that has been much too prevalent during the drouth period. This situation is portrayed by the data under consideration. The 64 farms in the first two groups shown in Table 2 had only \$162 for family living, a sum obviously too small. These farms would of necessity need to use the \$110 allowed for depreciation, as living expenses. That this is particularly true is also emphasized by the fact that very few of these farms received Resettlement Rehabilitation loans or grants during 1935. They were living on accumulated capital. The number of such clients, however, have increased during the past year, indicating that certain liquidation has already taken place.

Preliminary Summary of Detailed Schedules  
Arranged by Income Available for Family Living

In order to further check the suggestions which seem to be apparent in regard to factors associated with desirable land use, the data was also classified with the average income for family living as the base. The class interval arbitrarily chosen included those farms having less than a minus \$500 in one group, those between 0 and  $\sqrt{\text{new}}$  \$500, 0 and \$500, \$500 - \$1000, \$1000 - \$1500, and those above \$1500 in other groups.

In the discussion so far, considerable emphasis has been placed on the size of the operating unit as an important factor influencing desirable land use. While the data in the following tables does not invalidate but rather corroborates contentions made, it also indicates that other factors are important. It is interesting to note that ten farms or approximately 5 percent of those included in the phase of the



study are shown in Table 7 to have a minus \$739 average income for family living but yet have 2794 acres in the operating unit. On a basis of the data shown, these farms would be completely liquidated in ten years. The drought has had and is having a very undesirable influence on the farm or ranch operation. Considerable liquidation has already taken place and will continue to occur as long as there is a shortage of feed. Two cattle ranches in this group of 10, that had 8 sections in the unit, secured only a 50 percent calf crop. When it is known that it takes approximately 25 percent of the calves for replacements under normal operations, it can be seen that a 50 percent calf crop provides for relatively small sales. Studies of cattle ranching made by the Department of Economics of the University show that the percent of calf crop is one of the most important factors influencing profits. The percentage of calf crops or lamb crop is materially influenced by the amount of feed available. The cost of growth, another very important factor affecting success, is also materially influenced by the amount of range or pasture feed available. To establish sound land use, these factors emphasize the need for a conservative rate of stocking and for maintaining a surplus in feed against the contingency of the periodic drought.

5/ Further reference to Table 7 points out, among other things, the relationship between the size of the operating unit and the income available for family living. Except for the first group of 10 farms discussed above, the data shows a distinct tendency for the net farm returns to become larger as the size of the operating unit increases. As suggested before, the most important problem is perhaps associated with high proportion of farms that in 1935 received a return insufficient





to support a family. Sixty percent of the farms included in the study were receiving less than \$500 for living. In fact as an average, the 104 included in the first three groups had nothing left. The living expenses, of necessity, had to come from borrowed money or capital liquidations. In this case the capital reduction or the amount allowed for depreciation, provided a \$100 for living as an average for the 104 farms included in the first three groups.

The operators of the small farms tend to have an over investment in non-productive capital. The feasibility of purchasing tractors and power machinery should be thoroughly scrutinized since the point of diminishing returns is rapidly approached if the tractor does not receive fairly constant use throughout the year. Power equipment can not be expected to become a paying investment on a farm on which the cropping program permits its use but a small portion of time during the year. On the other hand the possibilities to get a large amount of work done in a short time may frequently make power equipment an indispensable part of an efficient farm organization. In the present study the capital in improvements and equipment represent 32 percent, land 31 percent, feeds and supplies 2 percent, and livestock 35 percent of the total investment. On a basis of returns shown in these tabulations, two-thirds to three-fourths of the total income is from livestock. The income from crops represents about 1/7 each for the two groups of farms with smallest income; about 1/5 each for the next two and about 1/10 each for the numbers included in the last two groups or the largest farms. This information tends to substantiate the contention that the area is essentially best adapted to the production of livestock and that a natural adjustment is taking place in which the attempt is being made to establish use on this basis. However, as previously pointed out, the operator of a small unit finds





it difficult to accomplish such adjustment since the carrying capacity is so low that a relatively large acreage of pasture is required in order to permit livestock numbers that are adequate for providing a respectable living for the family.

A probable indication of a minimum size of farm organized on a self-sustaining basis is shown by the information included in the two groups of farms in Table 7 having an average of \$225 and \$685 for family living. The 93 farms included in these two groups had a labor income of approximately \$400 on the average available for the family. There were approximately 2 1/3 sections of land in the operating unit. The gross income amounted to \$1350 of which 65 percent was from livestock and livestock products and 19 percent from crops. An average of \$281 or 83 percent of all the income from crops was received from the sale of wheat. These farms had approximately a third of their capital invested in land and a third in livestock.



SUMMARY OF DETAILED LAND USE SURVEY SCHEDULES  
ARRANGED BY  
INCOME FOR FAMILY LIVING  
Table 7

Item	Average Income for Family Living					
	\$-739	\$-189	\$225	\$685	\$1129	\$3104
No. of Farms	10	46	58	35	18	23
Acres Per Farm	2794	878	1141	1600	2215	8634
Investment Ratio:						
Land	\$3195	\$1608	\$1661	\$2695	\$2960	\$10156
Percent of Total	34	33	31	29	30	31
Buildings	\$1577	\$1414	\$1432	\$2278	\$2125	\$6038
Percent of Total	17	29	27	25	21	18
Equipment	\$ 996	\$ 560	\$ 584	\$ 611	\$ 777	\$1528
Percent of Total	11	11	11	7	8	5
Livestock	\$3573	\$1248	\$1596	\$3457	\$3863	\$14759
Percent of Total	37	25	30	37	38	44
Feed-Supplies	\$ 124	\$ 84	\$ 109	\$ 230	\$ 345	\$ 670
Percent of Total	1	2	.2	2	3	2
Average Liabilities	\$1916	\$ 936	\$1127	\$1698	\$1167	\$7490
Percent of Total	20	19	21	18	12	23
Owned Capital	\$7549	\$3978	\$4255	\$7573	\$8903	\$25661
Percent of Total	80	81	79	82	88	77
Total Receipts	\$1374	\$ 647	\$ 952	\$1729	\$2329	\$7445
Total Expenses	\$1896	\$ 796	\$ 661	\$ 938	\$1133	\$3891
Farm Income	\$-522	\$-136	\$ 291	\$ 791	\$1196	\$3554
Interest Paid	\$ 217	\$ 53	\$ 66	\$ 95	\$ 66	\$ 451
Income Family Living	\$-739	\$-189	\$ 225	\$ 696	\$1130	\$3103
Unpaid Labor	\$ 21	\$ 61	\$ 29	\$ 21	\$ 77	\$ 124
Operators Income	\$-760	\$-250	\$ 196	\$ 675	\$1053	\$2979
Interest Allowed	\$ 278	\$ 196	\$ 213	\$ 357	\$ 454	\$1231
Labor Income	\$1038	\$-446	\$- 17	\$ 324	\$ 599	\$1748
Capital Reductions	\$ 168	\$ 64	\$ 128	\$ 160	\$ 276	\$ 371





SUMMARY OF DETAILED LAND USE SURVEY SCHEDULES  
ARRANGED BY  
INCOME FOR FAMILY LIVING  
Table 7

(Continued)

Item	Average Income for Family Living					
	\$-739	\$-189	\$225	\$685	\$1129	\$3104
Receipts:						
Livestock Percent of Total	\$1016 74	\$ 332 51	\$ 424 45	\$ 740 43	\$1283 55	\$2541 34
Livestock Products Percent of Total	\$ 86 6	\$ 155 23	\$ 141 15	\$ 203 12	\$ 303 13	\$2207 30
Crops Percent of Total	\$ 231 17	\$ 109 17	\$ 204 21	\$ 349 20	\$ 267 11	\$ 781 11
A.A.A. Payments Percent of Total	\$ 35 3	\$ 26 4	\$ 39 4	\$ 63 3	\$ 59 3	\$ 94 1
Outside Labor Percent of Total	--	\$ 6 1	\$ 29 3	\$ 48 3	\$ 45 2	\$ 32 1
Miscellaneous Percent of Total	\$ 6 0	\$ 19 3	\$ 14 1	\$ 12 1	--	\$ 23 0
Inventory Increase:						
Buildings Percent of Total	--	--	--	--	--	\$ 42 1
Livestock Percent of Total	--	--	\$ 53 6	\$ 201 12	\$ 198 9	\$1486 20
Feed-Supplies Percent of Total	--	\$ 13 2	\$ 48 5	\$ 113 6	\$ 174 7	\$ 239 3
Total Receipts	\$1374	\$ 660	\$ 952	\$1729	\$2329	\$7445





SUMMARY OF DETAILED LAND USE SURVEY SCHEDULES  
ARRANGED BY  
INCOME FOR FAMILY LIVING  
Table 7

(Continued)

Item	Average Income for Family Living					
	\$-739	\$-189	\$225	\$685	\$1129	\$3104
Expenses:						
Equipment--Repairs & Fuel	\$ 326	\$ 111	\$ 101	\$ 124	\$ 122	\$ 396
Percent of Total	17	14	15	13	11	10
Improvements--Repairs	\$ 7	\$ 11	\$ 19	\$ 18	\$ 15	\$ 92
Percent of Total		1	3	2	1	2
Feeds-Seeds	\$ 267	\$ 75	\$ 63	\$ 97	\$ 89	\$ 546
Percent of Total	14	9	10	10	8	14
Property Tax	\$ 161	\$ 50	\$ 53	\$ 93	\$ 155	\$ 373
Percent of Total	8	6	8	10	14	10
Land Rent	\$ 68	\$ 37	\$ 42	\$ 48	\$ 92	\$ 329
Percent of Total	4	5	6	5	8	9
Hired Labor	\$ 218	\$ 86	\$ 56	\$ 101	\$ 124	\$1150
Percent of Total	12	11	9	11	11	30
Miscellaneous	\$ 174	\$ 67	\$ 72	\$ 124	\$ 151	\$ 354
Percent of Total	9	8	11	13	13	9
Purchases:						
Livestock	\$ 110	\$ 19	\$ 46	\$ 82	\$ 116	\$ 325
Percent of Total	6	2	7	9	10	8
New Machinery	\$ 86	\$ 78	\$ 35	\$ 47	\$ 80	\$ 284
Percent of Total	5	10	5	5	7	7
Inventory Decrease:						
Buildings	\$ 9	\$ 69	\$ 68	\$ 93	\$ 59	---
Percent of Total		9	10	10	5	
Equipment	\$ 245	\$ 76	\$ 106	\$ 111	\$ 130	\$ 42
Percent of Total	13	10	16	12	12	1
Livestock	\$ 201	\$ 117	--	--	--	--
Percent of Total	11	15				
Feed-Supplies	\$ 24	--	--	---	--	--
Percent of Total	1					
Total Expenses	\$1896	\$ 796	\$ 661	\$ 938	\$1133	\$3891





The relationship between the kinds and the available feed and the number of livestock is shown in Table 8. As an average for all the farms and ranches, 79 percent of all the feed came from pasture, 12 percent from hay, 3 percent from grain and 6 percent from other sources. As a general rule the larger the operating unit the larger the proportion of feed is from pasture. This particular data indicates that the larger ranches secured approximately 87 percent of the total feed from pasture, while the smallest ones secured 71 percent. <sup>6/</sup> Perhaps the important situation shown in this table is the relationship between the feed available and the number of livestock. The data suggests that at least during 1935 the larger ranches are overstocked. The ratio of available feed to the numbers of livestock vary from a condition of balance, as indicated by the information shown as the average for the farms in the second group, to the situation shown by the last group of largest ranches where there is approximately 30 percent more livestock than available feed. On a basis of all the farms and ranches included in this portion of the study, there was approximately 20 percent more livestock than available feed. The severe drought of 1934 likely contributed to this situation since all available feed supplies were exhausted and it was necessary to graze the meadows late in the following year. Supplies of hay in 1935 were thus depleted. However, since it is thought that these data are a representative sample of the County as a whole and fairly indicative of the dry farm area in northeastern Wyoming, and since this area is relatively best adapted to livestock production, the need for conservative rate of stocking as a method of effecting sound land use is materially emphasized. Further discussion in regard to this particular problem is given in a later part of the report.

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<sup>6/</sup> The basis used for compiling this information is discussed on pages 95 and 96 Table 23.





LAND USE SURVEY  
SUMMARY OF DETAILED SCHEDULES

Arranged by

INCOME FOR FAMILY LIVING

Table 8

LIVESTOCK FEED PRODUCTION AND REQUIREMENTS

	No. of Farms	FEED CONSUMED BY LIVESTOCK									
		Hay		Grain							
		Alfalfa	Wild	Grain	Thistle	Corn	Wheat	Barley	Oats	Eye	Corn Fodder
Amount of Feed T.D.N.'s Consumed	9	14 14448	23 26832	5 5160	14 10939	17 816	63 3087	--	78 1638	4 180	--
Amount of Feed T.D.N.'s Consumed	45	1 1032	3 3508	8 10320		57 2736	66 3234	13 494	13 273	4 180	5 5882
Amount of Feed T.D.N.'s Consumed	51	6 6192	4 4747	3 3405	1 722	63 3024	69 3381	15 315	45 945	8 360	2 2270
Amount of Feed T.D.N.'s Consumed	34	3 3096	17 19608	7 7843	4 3096	92 4416	115 5635	15 570	37 777	15 675	17 20640
Amount of Feed T.D.N.'s Consumed	17	13 13416	7 8256	9 10114	1 722	137 6576	82 4018	7 266	34 714	8 360	--
Amount of Feed T.D.N.'s Consumed	21	14 1448	33 39216	16 18163	1 722	82 3936	36 1764	3 114	12 441	19 855	1 826

\*Notes for table 16 apply to this table.

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LAND USE SURVEY  
SUMMARY OF DETAILED SCHEDULES  
Arranged by  
INCOME FOR FAMILY LIVING  
Table 8  
(Continued)

Misc.	Feed Purchased	Acres Grain Unharvested	Acres Fodder Unharvested	Acres Pasture Land	Total T.D.N's	No. stock feed is available for	No. of animal Units
x 1040	x 2395	11 1133	43 7009	1724 177572	252249	61	83
--	x 1600	2 206	12 1956	768 79104	110525	27	28
--	x 718	5 315	16 2608	871 89713	118715	29	31
--	x 1840	6 618	13 2119	1414 145642	216575	52	55
x 2126	x 1765	3 303	26 4238	1881 193743	246617	60	75
x 2336	x 17701	3 303	14 2282	6748 695044	798151	193	263



LAND USE SURVEY SUMMARY  
OF DETAILED RECORDS  
ARRANGED BY  
INCOME FOR FAMILY LIVING  
ANIMAL UNITS BY GROUPS

Table 9

	No. of Farms	Beef Cattle				Dairy Cows	Sheep	Horses	Swine	Total Animal Units	Acre of Land Per Animal Unit
		Cows	Heifers	Bulls	Steers						
Size of Operating Unit 2794 Acres											
No. of Stock	10	49	24	1	9		.3	12	1		
No. Animal Units		49	15.36	1.25	5.49		.06	12	.32	83	34
Size of Operating Unit 878 Acres											
No. of Stock	46	9	5	.4	2	2	35.	5	1		
No. Animal Units		9	3.20	.50	1.22	2.2	7	5	.33	28	31
Size of Operating Unit 1141 Acres											
No. of Stock	58	14	9	1	5	1	6	7	2		
No. Animal Units		14	5.76	1.25	3.05	1.1	1.2	7	.67	34	34
Size of Operating Unit 1600 Acres											
No. of Stock	35	23	15.	1	8	.31	27	8	3		
No. Animal Units		23	9.60	1.25	4.88	.34	5.4	8	1	53	30
Size of Operating Unit 2215 Acres											
No. of Stock	18	29	20	2	13	3	84	24	1		
No. Animal Units		29	12.80	2.50	7.93	3.3	16.8	24	.3	96	23
Size of Operating Unit 8634 Acres											
No. of Stock	23	79	50.	4	31	.36	1146	16	4		
No. Animal Units		79	32.	5.00	18.91	.4	229.2	16	1.3	387	22





Preliminary Summary of Short Form Schedules  
Arranged by Size of Operating Unit

In order to secure a picture of present land use and some of the more important factors associated with desirable and undesirable land use management, especially as far as the range livestock industry is concerned, a brief record of land use during 1935 was secured from most of the operators in Campbell County. In addition to the location of the operating unit, information in regard to the land in hay and the land currently farmed, the numbers of the various kinds of livestock, as well as factors associated with a minimum economic unit, general land use practices, home conveniences, water wells and crop production was secured.

7/ The data and discussion following is a part of an Area Planning Study which attempts to show in further detail the factors that influence and determine the opportunities or chances that a farmer or rancher may have to become self sustaining and yet institute a land use management that will tend to conserve the natural resources.

As a basis for measuring success or determining certain minimum requirements of a self-sustaining operating unit that will permit desirable land use, the gross income of all the farms and ranches has been computed. In the development of the data that will permit a fairly accurate determination of the gross income, the average return from all the important productive enterprises have been considered. The data secured in the detailed land use survey schedules have been used as the basis. This information shows the following returns from the various productive farm enterprises; 1 cattle unit \$18, 1 sheep unit \$4.80, wheat 92¢ per bushel, chicken hens \$2.25, turkey hens \$20, brood sows \$75. These figures represent values at the farm and check fairly





closely with derived averages for the State as a whole. Transportation or hauling charges would need to be deducted in order to arrive at the farm value.

The present study involves the data from 772 operating units. Schedules from 25 units were discarded because of being incomplete. The 1935 Census shows that there were 1227 farms in Campbell County or 430 more than were included in the survey. The data secured from farms and ranches, however, represent a more complete picture than is suggested by this difference. The best available estimates indicate that by the end of 1936 the number of farms had been reduced by approximately 20 percent below the number at the time of the 1935 Census enumeration. These people have either moved out of the area or have become relief clients and have moved into town. Since the field work of the present land use survey began in the early part of August 1936, and was essentially concluded at the end of the year, the number of farmers in the County that would likely have been interviewed in connection with the present study are therefore considerably less than is indicated by the Census. There are, however, additional reasons why the number of operators included in this study are less than shown by the Census. Frequently the operators of small farms, enumerated by the Census, work for and lease their land to large ranchers. In this study such land would be included as a part of the larger unit. Occasionally a large ranch will rent-out or lease a small portion of his land, in fact quite a number of tenants are in evidence because of such an arrangement. Unless the enumerator was informed that such a situation existed, these operators would not be included as an individual unit in this study. Larger ranches are occasionally subdivided and operated by various members of the family. In such a case the Census would likely enumerate several



LAND USE SURVEY  
SUMMARY OF SHORT FORM SCHEDULES  
ANIMAL UNITS BY GROUPS  
Table 10

Number of Operating Units				Cattle	Sheep	Horses	Hogs	Total Animal Units
Size of Operating Unit -- 285 Acres								
57	No. of Animals			9	8	4	1	13
	No. Animal Units			7.47	1.6	4	.3	
Size of Operating Unit -- 570 Acres								
154	No. of Animals			14	14	5	1	20
	No. Animal Units			11.62	2.8	5	.3	
Size of Operating Unit -- 980 Acres								
198	No. of Animals			24	19	5	1	29
	No. Animal Units			19.92	3.8	5	.3	
Size of Operating Unit --1851 Acres								
183	No. of Animals			43	95	8	1	63
	No. Animal Units			35.69	19.0	8	.3	
Size of Operating Unit --3592 Acres								
89	No. of Animals			96	193	13	1	132
	No. Animal Units			79.68	38.6	13	.3	
Size of Operating Unit -- 7162 Acres								
46	No. of Animals			155	537	24	1	260
	No. Animal Units			128.65	107.4	24	.3	
Size of Operating Unit -- 13836 Acres								
31	No. of Animals			317	845	17	2	450
	No. Animal Units			263.11	169.0	17	.6	
Size of Operating Unit -- 34820 Acres								
14	No. of Animals			746	2927	63	1	1268
	No. Animal Units			619.18	585.4	53	.3	





farms while in the present study the area would likely be included as one unit. It was intended, at the time this planning activity was organized, to include, as far as possible, all the units in the County. As nearly as can be determined at present, the above information explains the difference between the data secured and the 1935 Census enumeration.

Since the size of the operating unit and various associated factors are of importance in connection with the determination of sound land use, the data on these short form schedules was sorted with the area in the operating unit as the base. Table 10 shows such a tabulation together with the livestock numbers. The average size of the 772 units in the study is represented by 2857 acres or slightly under  $4\frac{1}{2}$  sections, an area that is probably smaller than the acreage needed to establish a minimum self-sustaining unit on a strictly livestock production basis.

The group interval used in the classification of the data secured in these short form schedules is the same as that previously discussed on page 21 under the summary of the detailed land use survey. The average size of farm by group range from 285 acres to almost 35,000. The accumulated average size of farms is shown by the following data:

No. of Farms by group	Ave. acreage per farm by group	Accumulated total number of farms	Ave. acreage per farm by accumulated total
57	285	57	285
154	570	211	493
198	980	409	729
183	1851	592	1076
89	3592	681	1407
46	7162	727	1769
31	13836	758	2262
14	34820	772	2853

A brief analysis of these figures emphasize the problem involved in land use adjustment in this area where there are only limited possibilities for satisfactory crop farming. <sup>8/</sup> It has been suggested

8/ Refer to page 118-122.





LAND USE SURVEY  
SUMMARY OF SHORT FORM SCHEDULES  
\* INCOME BY GROUPS

Table 11

No. of Farms	Acres in Unit			Income							Total
	Operated	Owned	Leased	Cattle	Sheep	Horses	Hogs	Poultry	Turkeys	Wheat	
57	285	224	62	\$ 162	\$ 38	\$ 0	\$ 75	\$ 63	\$ 6	\$ 104	\$ 448
154	570	474	96	\$ 252	\$ 67	\$ 0	\$ 75	\$ 70	\$ 20	\$ 166	\$ 650
198	980	685	296	\$ 432	\$ 91	\$ 0	\$ 75	\$ 72	\$ 40	\$ 249	\$ 959
183	1851	1162	689	\$ 774	\$ 456	\$ 0	\$ 75	\$ 67	\$ 20	\$ 190	\$ 1582
89	3592	2126	1466	\$ 1728	\$ 926	\$ 0	\$ 75	\$ 63	\$ 20	\$ 258	\$ 3070
46	7162	4273	2889	\$ 2790	\$ 2578	\$ 0	\$ 75	\$ 76	\$ 8	\$ 81	\$ 5608
31	13836	7036	6800	\$ 5706	\$ 4056	\$ 0	\$ 150	\$ 65	\$ 0	\$ 14	\$ 9991
14	34820	16969	17851	\$ 13428	\$ 14050	\$ 0	\$ 75	\$ 56	\$ 0	\$ 211	\$ 27820
Average	2853	1652	1201	\$ 1188	\$ 826	\$ 0	\$ 75	\$ 67	\$ 20	\$ 189	\$ 2365

\*Gross income computations as suggested on page 47.

Station	1000	0905	1000	0910	0915	0920	0925	0930	0935	0940	0945	0950	0955	1000	1005	1010	1015	1020	1025	1030	1035	1040	1045	1050	1055	1100	1105	1110	1115	1120	1125	1130	1135	1140	1145	1150	1155	1200	1205	1210	1215	1220	1225	1230	1235	1240	1245	1250	1255	1300	1305	1310	1315	1320	1325	1330	1335	1340	1345	1350	1355	1400	1405	1410	1415	1420	1425	1430	1435	1440	1445	1450	1455	1500	1505	1510	1515	1520	1525	1530	1535	1540	1545	1550	1555	1600	1605	1610	1615	1620	1625	1630	1635	1640	1645	1650	1655	1700	1705	1710	1715	1720	1725	1730	1735	1740	1745	1750	1755	1800	1805	1810	1815	1820	1825	1830	1835	1840	1845	1850	1855	1900	1905	1910	1915	1920	1925	1930	1935	1940	1945	1950	1955	2000	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050	2055	2100	2105	2110	2115	2120	2125	2130	2135	2140	2145	2150	2155	2200	2205	2210	2215	2220	2225	2230	2235	2240	2245	2250	2255	2300	2305	2310	2315	2320	2325	2330	2335	2340	2345	2350	2355	2400	2405	2410	2415	2420	2425	2430	2435	2440	2445	2450	2455	2500	2505	2510	2515	2520	2525	2530	2535	2540	2545	2550	2555	2600	2605	2610	2615	2620	2625	2630	2635	2640	2645	2650	2655	2700	2705	2710	2715	2720	2725	2730	2735	2740	2745	2750	2755	2800	2805	2810	2815	2820	2825	2830	2835	2840	2845	2850	2855	2900	2905	2910	2915	2920	2925	2930	2935	2940	2945	2950	2955	3000	3005	3010	3015	3020	3025	3030	3035	3040	3045	3050	3055	3100	3105	3110	3115	3120	3125	3130	3135	3140	3145	3150	3155	3200	3205	3210	3215	3220	3225	3230	3235	3240	3245	3250	3255	3300	3305	3310	3315	3320	3325	3330	3335	3340	3345	3350	3355	3400	3405	3410	3415	3420	3425	3430	3435	3440	3445	3450	3455	3500	3505	3510	3515	3520	3525	3530	3535	3540	3545	3550	3555	3600	3605	3610	3615	3620	3625	3630	3635	3640	3645	3650	3655	3700	3705	3710	3715	3720	3725	3730	3735	3740	3745	3750	3755	3800	3805	3810	3815	3820	3825	3830	3835	3840	3845	3850	3855	3900	3905	3910	3915	3920	3925	3930	3935	3940	3945	3950	3955	4000	4005	4010	4015	4020	4025	4030	4035	4040	4045	4050	4055	4100	4105	4110	4115	4120	4125	4130	4135	4140	4145	4150	4155	4200	4205	4210	4215	4220	4225	4230	4235	4240	4245	4250	4255	4300	4305	4310	4315	4320	4325	4330	4335	4340	4345	4350	4355	4400	4405	4410	4415	4420	4425	4430	4435	4440	4445	4450	4455	4500	4505	4510	4515	4520	4525	4530	4535	4540	4545	4550	4555	4600	4605	4610	4615	4620	4625	4630	4635	4640	4645	4650	4655	4700	4705	4710	4715	4720	4725	4730	4735	4740	4745	4750	4755	4800	4805	4810	4815	4820	4825	4830	4835	4840	4845	4850	4855	4900	4905	4910	4915	4920	4925	4930	4935	4940	4945	4950	4955	5000	5005	5010	5015	5020	5025	5030	5035	5040	5045	5050	5055	5100	5105	5110	5115	5120	5125	5130	5135	5140	5145	5150	5155	5200	5205	5210	5215	5220	5225	5230	5235	5240	5245	5250	5255	5300	5305	5310	5315	5320	5325	5330	5335	5340	5345	5350	5355	5400	5405	5410	5415	5420	5425	5430	5435	5440	5445	5450	5455	5500	5505	5510	5515	5520	5525	5530	5535	5540	5545	5550	5555	5600	5605	5610	5615	5620	5625	5630	5635	5640	5645	5650	5655	5700	5705	5710	5715	5720	5725	5730	5735	5740	5745	5750	5755	5800	5805	5810	5815	5820	5825	5830	5835	5840	5845	5850	5855	5900	5905	5910	5915	5920	5925	5930	5935	5940	5945	5950	5955	6000	6005	6010	6015	6020	6025	6030	6035	6040	6045	6050	6055	6100	6105	6110	6115	6120	6125	6130	6135	6140	6145	6150	6155	6200	6205	6210	6215	6220	6225	6230	6235	6240	6245	6250	6255	6300	6305	6310	6315	6320	6325	6330	6335	6340	6345	6350	6355	6400	6405	6410	6415	6420	6425	6430	6435	6440	6445	6450	6455	6500	6505	6510	6515	6520	6525	6530	6535	6540	6545	6550	6555	6600	6605	6610	6615	6620	6625	6630	6635	6640	6645	6650	6655	6700	6705	6710	6715	6720	6725	6730	6735	6740	6745	6750	6755	6800	6805	6810	6815	6820	6825	6830	6835	6840	6845	6850	6855	6900	6905	6910	6915	6920	6925	6930	6935	6940	6945	6950	6955	7000	7005	7010	7015	7020	7025	7030	7035	7040	7045	7050	7055	7100	7105	7110	7115	7120	7125	7130	7135	7140	7145	7150	7155	7200	7205	7210	7215	7220	7225	7230	7235	7240	7245	7250	7255	7300	7305	7310	7315	7320	7325	7330	7335	7340	7345	7350	7355	7400	7405	7410	7415	7420	7425	7430	7435	7440	7445	7450	7455	7500	7505	7510	7515	7520	7525	7530	7535	7540	7545	7550	7555	7600	7605	7610	7615	7620	7625	7630	7635	7640	7645	7650	7655	7700	7705	7710	7715	7720	7725	7730	7735	7740	7745	7750	7755	7800	7805	7810	7815	7820	7825	7830	7835	7840	7845	7850	7855	7900	7905	7910	7915	7920	7925	7930	7935	7940	7945	7950	7955	8000	8005	8010	8015	8020	8025	8030	8035	8040	8045	8050	8055	8100	8105	8110	8115	8120	8125	8130	8135	8140	8145	8150	8155	8200	8205	8210	8215	8220	8225	8230	8235	8240	8245	8250	8255	8300	8305	8310	8315	8320	8325	8330	8335	8340	8345	8350	8355	8400	8405	8410	8415	8420	8425	8430	8435	8440	8445	8450	8455	8500	8505	8510	8515	8520	8525	8530	8535	8540	8545	8550	8555	8600	8605	8610	8615	8620	8625	8630	8635	8640	8645	8650	8655	8700	8705	8710	8715	8720	8725	8730	8735	8740	8745	8750	8755	8800	8805	8810	8815	8820	8825	8830	8835	8840	8845	8850	8855	8900	8905	8910	8915	8920	8925	8930	8935	8940	8945	8950	8955	9000	9005	9010	9015	9020	9025	9030	9035	9040	9045	9050	9055	9100	9105	9110	9115	9120	9125	9130	9135	9140	9145	9150	9155	9200	92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that a minimum self-sustaining farm unit that combines livestock and crops is about 2240 acres and 3840 acres on a basis of livestock production alone. The data indicate that there are 400 farms or approximately half of those in the County that are below this size in the former case, and 591, or more than two-thirds, in the latter situation. If the assumption in regard to the optimum size operating unit is somewhere near correct, this information emphasises the importance of the problem of adjustment.

On a basis of the data given in Table 11, the gross income of these farms varied from \$448 for the group of farms having an average of only 285 acres to more than \$10,000 for the larger units. The inadequate income of the small operating units is indicated by these data, essentially the same as was shown by information pertaining to the detailed survey. A gross income of less than a \$1000 is obviously too small to sustain a family on anything like a respectable basis. In this area in 1935 there was, as indicated by these data, 692 farmers or over 80 percent whose income averaged only \$1022. Of this amount approximately one-fifth of the farm receipts was from the production of wheat, one-fifth from the small livestock enterprises of chickens, turkeys and hogs, one-fifth from sheep and two-fifths from cattle. On the larger operating units of about six sections or more, the source of income is mostly from cattle and sheep. Except for the very largest ranches, cattle are somewhat more important than sheep. For the County as a whole, these figures support the contention that the area is one essentially used for and adapted to the production of range livestock. The average gross income of the 772 total farms and ranches is by this method, indicated to be \$2365. Of this amount 50 percent is from cattle, 35 percent from sheep, 7 percent from the small livestock enterprise of





chickens, turkeys and hogs, and 8 percent from the production of wheat.

Tables 12 and 13 shows the present land use in Campbell County as far as the production of crops are concerned. The data is summarized by the size of the operating unit in a manner similar to that shown in preceeding tables. The first group of farms having an average of 285 acres in the operating unit had 69 acres or 24 percent of the total area in crops, in fallow and in idle land. As would be expected, the ratio of crop land to total land decreases materially as the size of the unit becomes larger. The area in crops being less than 2 percent of the total acreage in the latter groups. There is also considerable variation in the proportion of the crop land used for the production of the various kinds of crops.

The following data indicate the proportion of the cultivated land in wheat, cultivated forage crops and alfalfa hay.

Group	Ave. size of farm	Acres Cultivated land	Fallow Idle	: PROPORTION OF AREA IN		
				: Wheat	: Alfalfa Hay	: Other grain & forage crops
I	285	64	28%	: 27%	: 6%	: 42%
II	570	62	--	: 45	: 13	: 42
III	980	114	15	: 33	: 8	: 44
IV	1851	101	13	: 29	: 14	: 44
V	3592	136	13	: 21	: 16	: 50
VI	7162	160	8	: 13	: 31	: 48
VII	13836	172	4	: 8	: 25	: 63
VIII	34810	248	9	: 6	: 20	: 65

As would be expected, the proportion of the crop land in wheat decreases as the acres in the operating unit become greater. The area in hay also becomes larger as the size of the farms increases.

Reference to Table 12 showing the acres and the production of the various crop or averages by size groups, it can be seen that the acreage of hay is relatively small and that there is no data for native hay. During a normal precipitation period, wild or native hay is a very important source of supplemental forage. The 1930 Census, which probably





## Table 12

No. of Operating Units	Grain in Bushels										Corn							
	Wheat			Corn			Barley			Oats			Rye			Fodder		
	Acres	Yld	Prod	Acres	Yld	Prod	Acres	Yld	Prod	Acres	Yld	Prod	Acres	Yld	Prod	Acres	Yld	Prod
Average Size of Operating Unit -- 285 Acres																		
57	17	7	113	9	5	45	2	10	21	3	3	8	5	4	22	1	1	1
Average Size of Operating Unit --570 Acres																		
154	28	6	180	11	4	46	1	4	4	3	5	16	2	9	18	2	.15	.3
Average Size of Operating Unit -- 980 Acres																		
198	38	7	271	14	6	90	1	9	9	19	2	46	3	6	18	4	.5	2
Average Size of Operating Unit -- 1851 Acres																		
183	29	7	207	11	4	49	2	4	8	6	9	53	5	4	19	4	.5	2
Average Size of Operating Unit -- 3592 Acres																		
89	29	10	280	7	3	19	1	6	6	3	3	9	4	5	19	5	.6	3
Average Size of Operating Unit -- 7162 Acres																		
46	21	4	88	13	7	93	2	.5	1	4	0	0	7	2	11	3	.7	2
Average Size of Operating Unit -- 13836 Acres																		
31	14	1	15	6	2	13	2	0	0	5	5	26	1	1	1	5	.6	3
Average Size of Operating Unit -- 34820 Acres																		
14	14	16	229	--	--	--	--	--	--	--	--	--	5	0	0	--	--	--

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	342	343	344	345	346	347	348	349	350	351	352	353	354	355	356	357	358	359	360	361	362	363	364	365	366	367	368	369	370	371	372	373	374	375	376	377	378	379	380	381	382	383	384	385	386	387	388	389	390	391	392	393	394	395	396	397	398	399	400	401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460	461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479	480	481	482	483	484	485	486	487	488	489	490	491	492	493	494	495	496	497	498	499	500	501	502	503	504	505	506	507	508	509	510	511	512	513	514	515	516	517	518	519	520	521	522	523	524	525	526	527	528	529	530	531	532	533	534	535	536	537	538	539	540	541	542	543	544	545	546	547	548	549	550	551	552	553	554	555	556	557	558	559	560	561	562	563	564	565	566	567	568	569	570	571	572	573	574	575	576	577	578	579	580	581	582	583	584	585	586	587	588	589	590	591	592	593	594	595	596	597	598	599	600	601	602	603	604	605	606	607	608	609	610	611	612	613	614	615	616	617	618	619	620	621	622	623	624	625	626	627	628	629	630	631	632	633	634	635	636	637	638	639	640	641	642	643	644	645	646	647	648	649	650	651	652	653	654	655	656	657	658	659	660	661	662	663	664	665	666	667	668	669	670	671	672	673	674	675	676	677	678	679	680	681	682	683	684	685	686	687	688	689	690	691	692	693	694	695	696	697	698	699	700	701	702	703	704	705	706	707	708	709	710	711	712	713	714	715	716	717	718	719	720	721	722	723	724	725	726	727	728	729	730	731	732	733	734	735	736	737	738	739	740	741	742	743	744	745	746	747	748	749	750	751	752	753	754	755	756	757	758	759	760	761	762	763	764	765	766	767	768	769	770	771	772	773	774	775	776	777	778	779	780	781	782	783	784	785	786	787	788	789	790	791	792	793	794	795	796	797	798	799	800	801	802	803	804	805	806	807	808	809	810	811	812	813	814	815	816	817	818	819	820	821	822	823	824	825	826	827	828	829	830	831	832	833	834	835	836	837	838	839	840	841	842	843	844	845	846	847	848	849	850	851	852	853	854	855	856	857	858	859	860	861	862	863	864	865	866	867	868	869	870	871	872	873	874	875	876	877	878	879	880	881	882	883	884	885	886	887	888	889	890	891	892	893	894	895	896	897	898	899	900	901	902	903	904	905	906	907	908	909	910	911	912	913	914	915	916	917	918	919	920	921	922	923	924	925	926	927	928	929	930	931	932	933	934	935	936	937	938	939	940	941	942	943	944	945	946	947	948	949	950	951	952	953	954	955	956	957	958	959	960	961	962	963	964	965	966	967	968	969	970	971	972	973	974	975	976	977	978	979	980	981	982	983	984	985	986	987	988	989	990	991	992	993	994	995	996	997	998	999	1000	1001	1002	1003	1004	1005	1006	1007	1008	1009	1010	1011	1012	1013	1014	1015	1016	1017	1018	1019	1020	1021	1022	1023	1024	1025	1026	1027	1028	1029	1030	1031	1032	1033	1034	1035	1036	1037	1038	1039	1040	1041	1042	1043	1044	1045	1046	1047	1048	1049	1050	1051	1052	1053	1054	1055	1056	1057	1058	1059	1060	1061	1062	1063	1064	1065	1066	1067	1068	1069	1070	1071	1072	1073	1074	1075	1076	1077	1078	1079	1080	1081	1082	1083	1084	1085	1086	1087	1088	1089	1090	1091	1092	1093	1094	1095	1096	1097	1098	1099	1100	1101	1102	1103	1104	1105	1106	1107	1108	1109	1110	1111	1112	1113	1114	1115	1116	1117	1118	1119	1120	1121	1122	1123	1124	1125	1126	1127	1128	1129	1130	1131	1132	1133	1134	1135	1136	1137	1138	1139	1140	1141	1142	1143	1144	1145	1146	1147	1148	1149	1150	1151	1152	1153	1154	1155	1156	1157	1158	1159	1160	1161	1162	1163	1164	1165	1166	1167	1168	1169	1170	1171	1172	1173	1174	1175	1176	1177	1178	1179	1180	1181	1182	1183	1184	1185	1186	1187	1188	1189	1190	1191	1192	1193	1194	1195	1196	1197	1198	1199	1200	1201	1202	1203	1204	1205	1206	1207	1208	1209	1210	1211	1212	1213	1214	1215	1216	1217	1218	1219	1220	1221	12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LAND USE SURVEY  
SUMMARY OF SHORT FORM SCHEDULES  
CROPS AND YIELDS  
Table 12 (Continued)

Hay in Tons			Alfalfa Seed Lbs.			Total Acres Crop Land			Acres Fallow	Acres Idle
Grain		Alfalfa	Acres		Yld	Prod	Grain	Grain Hay		
Acres	Yld	Prod	Acres	Yld	Prod	Prod	Acres	Acres		
Average Size of Operating Unit -- 285 Acres										
5	.5	3	4	.5	2	--	37	5	2	16
Average Size of Operating Unit -- 570 Acres										
6	.8	5	8	.5	4	1	47	6	--	--
Average Size of Operating Unit -- 980 Acres										
8	.8	6	9	.6	5	1	79	8	4	13
Average Size of Operating Unit -- 1851 Acres										
17	.5	9	14	.43	6	--	57	17	4	9
Average Size of Operating Unit -- 3592 Acres										
47	.8	39	22	.7	16	1	49	47	7	10
Average Size of Operating Unit -- 7162 Acres										
47	.7	34	50	.5	26	--	50	47	9	4
Average Size of Operating Unit -- 13836 Acres										
90	.5	48	43	.7	30	--	33	90	3	3
Average Size of Operating Unit -- 34820 Acres										
157	.6	96	49	.4	20	--	19	157	0	23





LAND USE SURVEY

SUMMARY OF SHORT FORM SCHEDULES

CROP PRODUCTION

Table 13

Crop	No. of Acres	Yield Per Acre	Total Yield	1935 Ave. Yield	Equivalent Acres	Index of Crop Production
Size of Operating Unit -- 285 Acres						
Wheat	17	7	113	7.08	16	94
Corn Grain	9	5	45	5.18	9	100
Barley	2	10	21	5.25	4	200
Oats	3	3	8	3.86	2	66
Rye	5	4.4	22	4.59	5	100
Alfalfa Hay	4	.5	2	.53	4	100
Grain Hay	5	.6	3	.66	5	100
Corn Fodder	1	1	1	.44	2	200
Alfalfa Seed				20.1		
Total-Average	46				27	102
Fallow	2					
Idle	16					
Size of Operating Unit -- 570 Acres						
Wheat	28	6	180	7.08	25.	89
Corn Grain	11	4	46	5.18	9	82
Barley	1	4	4	5.25	.76	76
Oats	3	5.3	16	3.86	4	133
Rye	2	9.00	18	4.59	4	200
Alfalfa Hay	8	.50	4	.53	8	100
Grain Hay	6	.83	5	.66	8	133
Corn Fodder	2	.20	3	.44	.68	34
Alfalfa Seed	1	25.00	25	20.1	1.0	100
Total-Average	62				60.	97
Fallow	--					
Idle	--					

ci 12



LAND USE SURVEY

SUMMARY OF SHORT FORM SCHEDULES

CROP PRODUCTION  
Table 13 (Continued)

Crop	No. of Acres	Yield Per Acre	Total Yield	1935 Ave. Yield	Equivalent Yield	Index of Crop Production
Size of Operating Unit -- 980 Acres						
Wheat	38	7	271	7.08	38	100
Corn Grain	14	6	90	5.18	17	121
Barley	1	9	9	5.25	2	200
Oats	19	2	46	3.86	12	63
Rye	3	6	18	4.59	4	133
Alfalfa Hay	9	.6	5	.53	9	100
Grain Hay	8	.8	6	.66	9	112
Corn Fodder	4	.5	2	.44	5	125
Alfalfa Seed	1	10	10	20.1	.40	40
Total-Average	97				96.4	99
Fallow Land	4					
Idle Land	13					

Size of Operating Unit -- 1851 Acres						
Wheat	29	7	207	7.08	29.	100
Corn Grain	11	4	49	5.18	9	82
Barley	2	4	8	5.25	2	100
Oats	6	9	53	3.86	14	233
Rye	5	4	19	4.59	4	80
Alfalfa Hay	14	.43	6	.53	11	79
Grain Hay	17	.5	9	.66	13	76
Corn Fodder	4	.5	2	.44	5	125
Alfalfa Seed	--	--	--	20.1	--	--
Total-Average	88				88	99
Fallow	4					
Idle	9					



LAND USE SURVEY  
SUMMARY OF SHORT FORM SCHEDULES  
CROP PRODUCTION

Table 13 (Continued)

Crop	No. of Acres	Yield Per Acre	Total Yield	1935 Ave. Yield	Equivalent Acres	Index of Crop Production
Size of Operating Unit -- 3592 Acres						
Wheat	29	10	280	7.08	40	138
Corn Grain	7	3	19	5.18	4	57
Barley	1	6	6	5.25	1	100
Oats	3	3	9	3.86	2	67
Rye	4	5	19	4.59	4	100
Alfalfa Hay	22	.7	16	.53	30	136
Grain Hay	47	.8	39	.66	59	126
Corn Fodder	5	.6	3	.44	7	140
Alfalfa Seed	1	10	10	20.1	.40	40
Total-Average	119				147.4	124
Fallow	7					
Idle	10					

Size of Operating Unit -- 7162 Acres						
Wheat	21	4	88	7.08	12	57
Corn Grain	13	7	93	5.18	18	138
Barley	2	.5	1	5.25	.19	95
Oats	4	0	0	3.86		
Rye	7	2	11	4.59	2	29
Alfalfa Hay	50	.5	26	.53	49	98
Grain Hay	47	.7	34	.66	52	111
Corn Fodder	3	.7	2	.44	5	167
Alfalfa Seed				20.1		
Total-Average	147				138.	94
Fallow	9					
Idle	4					



*[Faint, illegible text from bleed-through]*

LAND USE SURVEY

SUMMARY OF SHORT FORM SCHEDULES

CROP PRODUCTION

Table 13 (Continued)

Crop	No. of Acres	Yield Per Acre	Total Yield	1935 Ave. Yield	Equivalent Acres	Index of Crop Production
------	--------------	----------------	-------------	-----------------	------------------	--------------------------

Size of Operating Unit -- 13836 Acres

Wheat	14	1	15	7.08	2	14
Corn Grain	6	2	13	5.18	3	50
Barley	2	0	0	5.25	0	0
Oats	5	5	26	3.86	7.0	140
Rye	1	1	1	4.59	.21	21
Alfalfa Hay	43	.7	30	.53	57	133
Grain Hay	90	.53	48	.66	73	81
Corn Fodder	5	.6	3	.44	7	140
Alfalfa Seed				20.1		
Total-Average	166				142	86
Fallow	3					
Idle	3					

Size of Operating Unit -- 34820 Acres

Wheat	14	16	229	7.08	32	229
Corn Grain				5.18		
Barley				5.25		
Oats				3.86		
Rye	5			4.59		
Alfalfa Hay	49	.4	20	.53	38	78
Grain Hay	157	.6	96	.66	145.	92
Corn Fodder				.44		
Alfalfa Seed				20.1		
Total-Average	225				215.	96
Fallow	0					
Idle	23					





approaches a normal, indicates the production of over 18,000 tons of feed from this source. The 1935 Agricultural Census also shows the production of about 8000 tons of such hay. Data secured in the present land use survey shows the production of no wild hay which seems to be in contrast to the Census data. The reason for this difference is due to the fact that the drought of 1934 was so severe that the available feed supplies were completely exhausted and it was necessary to graze the hay meadows late into the following year. While sufficient precipitation occurred in the spring of 1935 to promote a fairly good stand of grass, the meadows were grazed to a point where there was very little area from which it was worth while to cut hay. The latter part of the year 1935 was also very dry. Consequently there was very little hay in 1935. The information shown in these tables associated with the fact that 1936 was another drouth year, gives emphasis to the need for adjustment not only in land use but in general management practices.

Maps on a scale of 1/2 inch to the mile have been prepared that show graphically the present land use and ownership in Campbell County. Figure 5 shows a representative sample of six townships immediately south of the town of Gillette. The sample area falls in township 48 and 49 north and Ranges 71, 72 and 73 west. Highways, county roads, railroads, towns, rural postoffices, and streams are shown in addition to the land use and ownership as indicated by the legend. Figure 6 shows land ownership, on a scale of 1:500,000, as determined from the 1935 assessment schedules.

Diversification of ownership is indicated by resident owned land and land under lease. Land is leased from resident owners, non-resident owners, and from the State, which is mostly school sections number 16 and 36 in each township. Tabulation of land ownership, as determined



by assessment schedules is also shown in Table 14 arranged by size of ownership. These data indicate 2788 different ownerships in the County in 1935. The number of farms, however, are materially less. A farm or ranch operator may rent land from one or several owners. The information at hand indicated approximately 380 different leases of state land in 1935. During this period the data also indicated that there were over 800 different parcels of non-resident owned land averaging about a section in size which also were under lease. It is interesting to note from Table 14 that almost 70 percent of the resident owners owned less than 640 acres and almost 30 percent owned less than 320 acres. Since the minimum self-sustaining operating unit that will permit sound land use is about 3 sections, these data indicate a significant factor in the land use adjustment problems.

A picture of present land ownership and use is shown in Figure 5. This area is located in the southeastern portion of Campbell County just north of the Acquisition area. Headquarters of 47 operating units are located within the boundaries of the six townships shown in the chart. Approximately 60 percent of the land is resident owned and 36 percent leased. The leased land is State, resident, and non-resident owned; the larger portions, however, being owned by non-residents and by the State. Approximately 8200 acres of land was in crops. Of this amount 600 acres was alfalfa hay and 7600 acres was currently farmed. Questions involved in land use planning are discussed in some detail in the following portions of this report.





## 1935

Table 14

A -- RESIDENT OWNER  
B -- NON-RESIDENT OWNER  
C -- CORPORATE

	0-80			81-160			161-320			321-480			481-640			641-960			961 & Above														
	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C												
Total No. Owners	66	37	2	82	51	2	376	224	3	188	57	3	628	371	5	229	42	1	375	37	9												
Ave. Acreage	55	51	5	147	157	140	301	308	306	423	423	393	629	636	640	813	824	657	3301	4450	5222												
No. Owners Irrigated	1	1		1			1	1					1																				
Ave. Acreage	40	50		100			238	190					640																				
No. Lessees	50			17			33			13				229					31	9													
Ave. Acreage	57			148			281			442				637					770	2014													
TOTAL OWNERS																						No. Owners Irrigated						NO. LESSEES OF STATE LAND					
A - 1944																						A - 4						382					
B - 819																						B - 2											
C - 25																						C - 0											
AVERAGE ACREAGE																						AVERAGE ACREAGE						AVERAGE ACRES LEASED					
A - 1043																						A - 254						545					
B - 651																						B - 120											
C - 438																						C - 0											

14



# LAND USE BY OPERATING UNITS & OWNERSHIP IN T44-45N, R70-71-72W.

Scale- 1"=2Mi. Fourche  
 Belle River  
 Owned Land  
 Leased Land  
 Fields  
 Hay  
 Abandoned Fields  
 Public Domain  
 Spring • Well  
 Headquarters  
 Reservoir

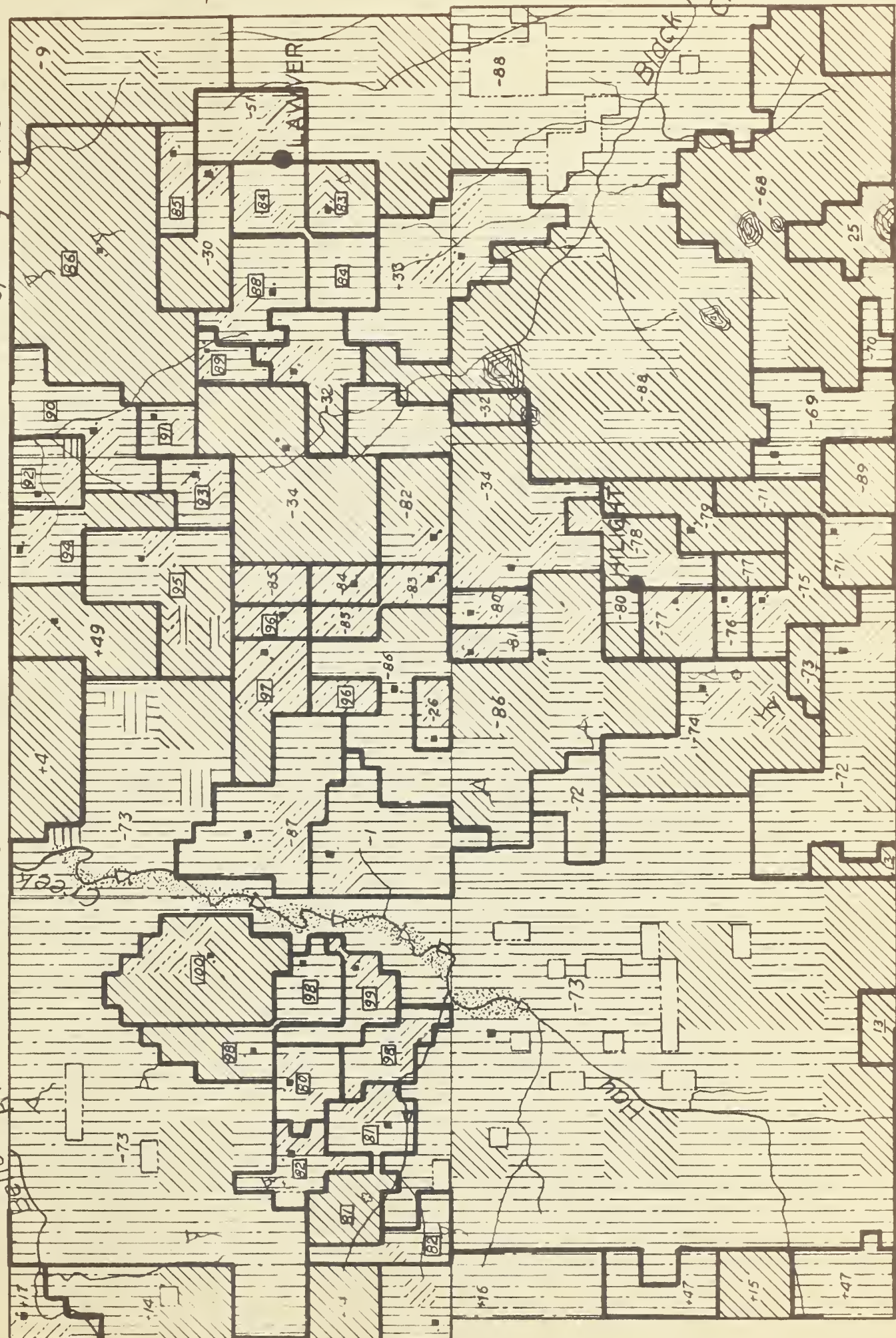


Fig. 5

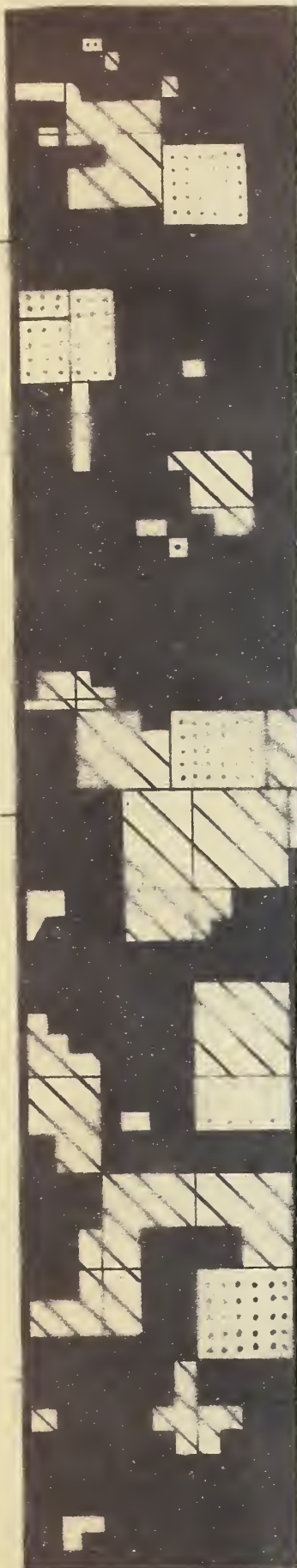
Compiled 4/37  
 Office State Land Planning Specialist







PRIVATE RE



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49  
N

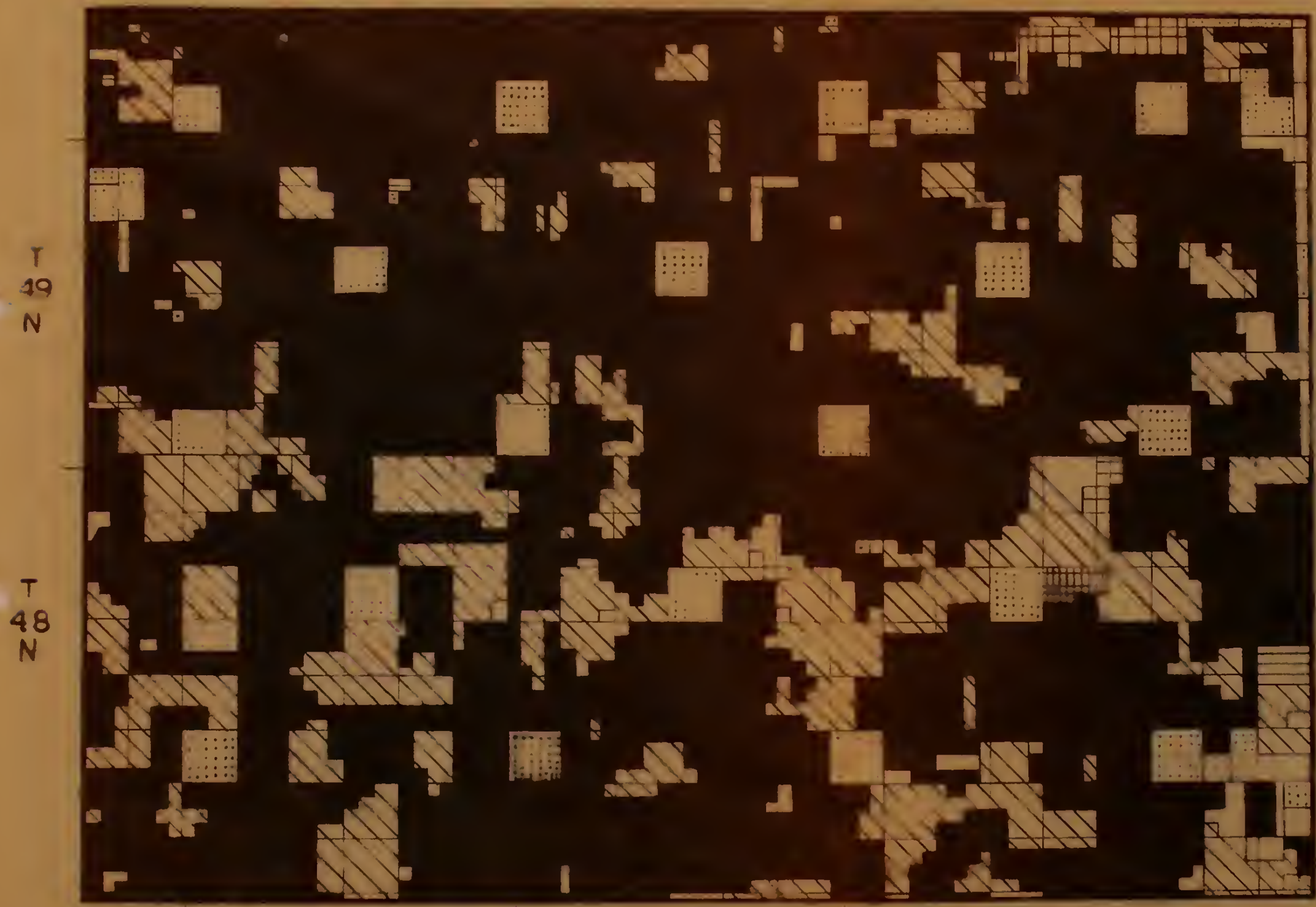
T  
48  
N





# CAMPBELL COUNTY—LAND OWNERSHIP MAP

PRIVATE RESIDENT
  PRIVATE NON RESIDENT
  COUNTY
  CORPORATIVE
  STATE
  FEDERAL



T  
49  
N

T  
48  
N

R 73 W

R 72 W

R 71 W

Figure No. 6  
 Compiled in the Office of the State Land Planning Specialist 4/37





SUMMARY STATEMENT OF THE  
INFLUENCE OF TENURE ON LAND USE ADJUSTMENT

Another important problem associated with land use adjustment is concerned with tenure. A brief and general statement in regard to land tenure problems in this area has been made in an earlier portion of this report. That it is a problem which merits attention is indicated by the changes which has occurred in the past three decades. Information in the chart following shows, on a basis of Agricultural Census data, that numbers of farms in the State, as a whole, increased from 6095 in 1900 to 17,487 in 1935. Compared to other States the number involved is relatively small but the proportion is significant, amounting to 287 percent. During the early part of this period the number of owners represented 66 percent of the total number of farms while in 1935 they represented 47 percent of the total. During the first two-thirds of the period there was little change in the status of full ownership but a decrease of 7 percent occurred between 1925 and 1935. Farms and ranches classified as part-owners increased from 19 percent of the total of all farms in 1900 to 28 percent in 1935. The increase of the farms and ranches included in this classification account for a significant portion of the change shown in the previous category. A farmer classified as a full owner in 1930, for example, would be a part-owner if he were leasing additional land in 1935. For this reason the reduction in the numbers of full owners is not proportional to the increase in tenancy. The increase in tenancy, however, has been of significant importance. In 1900 there were 464 tenants in Wyoming and in 1935 there were 4083, an increase from 8 to 23 percent of the total numbers of farms. This increase has been somewhat larger in the areas in which organized irrigated farming has been the important type of agricultural enterprise.



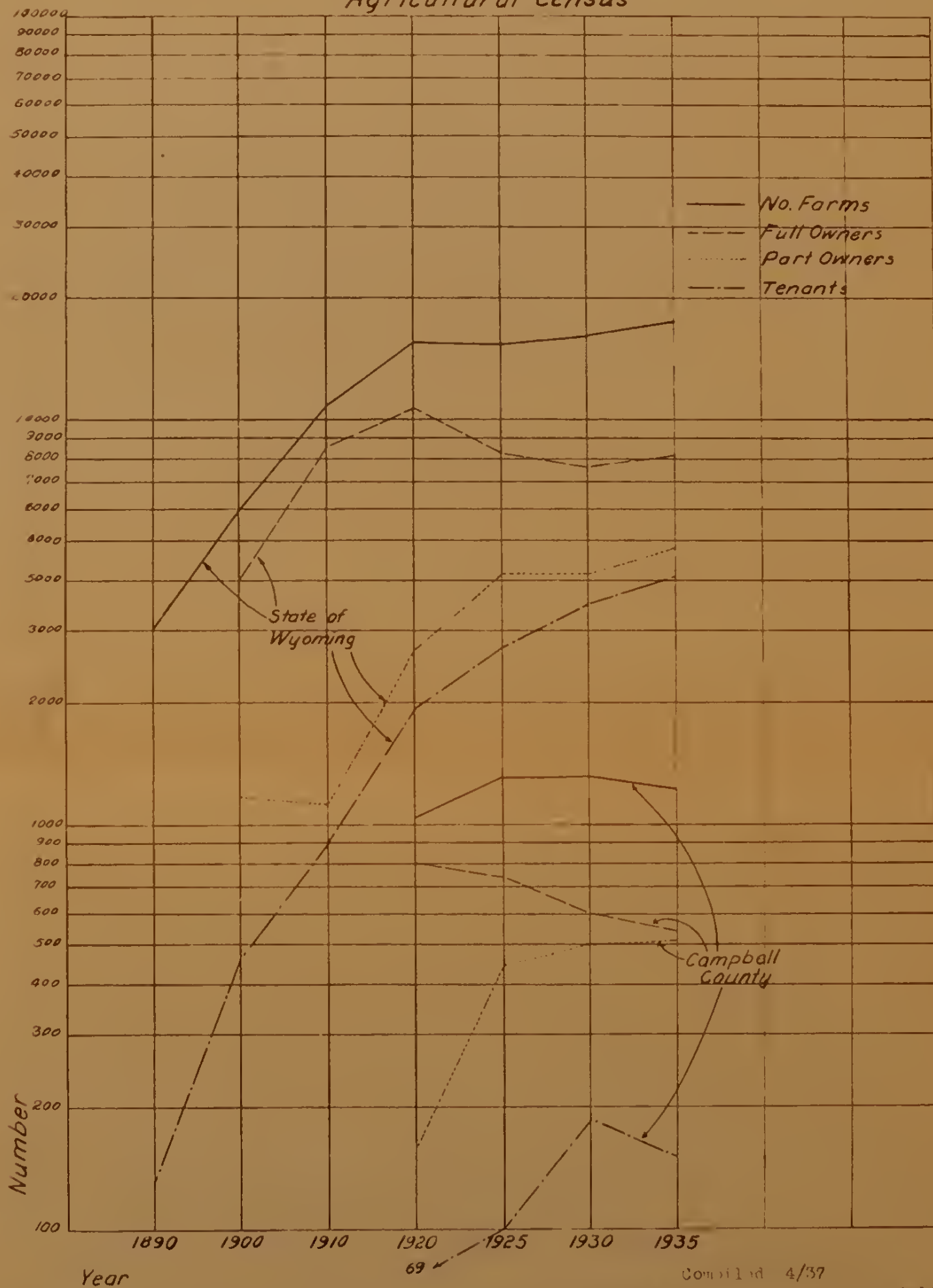
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# Tenure in Wyoming & Campbell County As Indicated By Agricultural Census







LAND TENURE  
as shown by the  
AGRICULTURAL CENSUS  
Table 15

STATE OF WYOMING

Years	No. of Farms	Full Owners	Percent of Total	Part Owners	Percent of Total	Managers	Percent of Total	Tenants	Percent of Total
1935	17,487	8202	47	4832	28	370	2	4083	23
1930	16,011	7896	49	4299	27	296	2	3520	22
1925	15,512	8342	54	4203	27	191	1	2776	18
1920	15,748	10,681	69	2722	17	377	2	1968	12
1910	10,987	8677	79	1102	10	311	3	897	8
1900	6,095	4007	66	1178	19	446	7	464	8

CAMPBELL COUNTY

1935	1227	546	44	523	43	8	1	150	12
1930	1310	599	46	506	38	15	1	190	15
1925	1310	748	57	461	35	1	--	100	8
1920	1072	821	77	160	15	22	2	69	6

CROOK COUNTY

1935	1038	458	44	290	28			281	27
1930	953	486	51	263	28			199	21
1925	1048	514	49	364	35			155	15
1920	1093	680	62	307	28			85	8

LARAMIE COUNTY

1935	1106	351	32	368	33			362	33
1930	996	306	31	384	39			282	28
1925	918	355	39	309	34			242	26
1920	1178	649	55	257	22			239	20

JOHNSON COUNTY

1935	574	226	39	241	42	13	2	94	16
1930	536	237	44	182	34	14	3	103	19
1925	467	245	52	139	30	6	1	77	16
1920	624	503	81	60	10	22	4	39	6
1910	338					8	2	56	17

SHERIDAN COUNTY

1935	1002	444	44	206	21	32	3	320	32
1930	926	411	44	191	21	31	3	293	42
1925	862	375	44	231	27	10	1	246	29
1920	972	591	61	143	15	40	4	198	20
1910	799					9	1	164	20

NIOBRARA COUNTY

1935	738	280	38	321	43			136	18
1930	727	341	47	259	36			124	17
1925	682	373	55	211	31			92	13
1920	739	511	69	187	25			37	5

WESTON COUNTY

1935	611	284	46	223	36			102	17
1930	616	301	49	209	34			105	17
1925	580	329	57	188	32			61	11
1920	721	507	70	184	26			23	3



On a basis of these Census figures, approximately 45 percent of all farms in the State in 1930 were classified as irrigated farms. Out of a total of 7308 irrigated farms, 1882 or 25.8 percent were tenants.

In CAMPBELL COUNTY the change since 1910, in the number of full owners of farms, has been approximately comparable to the change in numbers for the State as a whole. The number of part-owners, however, has increased materially more in this area than the average for the State. In 1935 the number of part-owners was about equal to the number of full owners. Forty-three percent were part-owners and 44 percent were full owners. During this same period, 1910 - 1935, the number of tenants increased from 6 to 12 percent. The ratio of the number of tenants to the total number of farmers is, however, smaller in this County than in other Counties to the south and east where dry farming is an important agricultural enterprise. In 1935 twenty-seven percent of the farms in Crook County were tenants; in Weston, Niobrara, and Laramie Counties the proportion of tenants to total farms was 17, 18 and 33 percent respectively. Full owners and part-owners made up 72 percent of the farms in Crook County, 82 percent in Weston, 81 percent in Niobrara and 65 percent in Laramie County.

A classification of the farms included in the detailed land use study indicate that there were 15 tenants, 73 owners, and 102 owners renting additional land or a ratio of 8, 38 and 54 percent. The proportion of tenant-operators found in the present land use survey are perhaps about what would be expected under a generally desirable system of land use. A sound farm management practice can be established on a farm that is operated by a tenant provided the landlord, as well as the operator, are willing to develop a type of farm organization that will tend to conserve the natural resources. Under a leasing arrangement





LAND USE SURVEY  
SUMMARY OF DETAILED SCHEDULES  
INCOME RATIOS BY TENURE

Table 16

Tenure	Number of Farms	Livestock	Livestock Products	Crops	Outside Labor	Benefit Payments Corn-Hog Wheat	Misc.	Total Income
OPERATING UNIT 0-320 ACRES								
Owners % of Total	15	\$ 58	\$ 56	\$ 152	\$ 113	\$ 17	\$ 11	\$ 407
Rentors % of Total	2	\$ 14	\$ 14	\$ 37	\$ 28	\$ 4	\$ 3	\$ 100
		\$ 83	\$ 27	\$ 235	\$ 0	\$ 37	\$ 0	\$ 582
		\$ 14	\$ 39	\$ 40	\$ 0	\$ 6	\$ 0	\$ 100
OPERATING UNIT 320-640 ACRES								
Owners % of Total	29	\$ 174	\$ 194	\$ 149	\$ 36	\$ 41	\$ 6	\$ 600
Owner- Additional % of Total	10	\$ 21	\$ 213	\$ 410	\$ 0	\$ 43	\$ 0	\$ 841
Rentors % of Total	8	\$ 67	\$ 120	\$ 208	\$ 5	\$ 61	\$ 0	\$ 461
		\$ 15	\$ 26	\$ 45	\$ 1	\$ 13	\$ 0	\$ 100
OPERATING UNIT 640-1280 ACRES								
Owners % of Total	20	\$ 433	\$ 148	\$ 392	\$ 42	\$ 47	\$ 27	\$ 1089
Owner- Additional % of Total	24	\$ 510	\$ 187	\$ 306	\$ 33	\$ 71	\$ 4	\$ 1111
Rentor % of Total	1	\$ 192	\$ 0	\$ 900	\$ 450	\$ 54	\$ 0	\$ 1596
		\$ 12	\$ 0	\$ 56	\$ 29	\$ 3	\$ 0	\$ 100

—



LAND USE SURVEY  
SUMMARY OF DETAILED SCHEDULES  
INCOME RATIOS BY TENURE

Table 16  
(Continued)

Tenure	Number of Farms	Livestock	Livestock Products	Crops	Outside Labor	Benefit Payments Corn-Hog Wheat	Misc.	Total Income
OPERATING UNITS 1280-2560 ACRES								
Owners % of Total	5	\$ 847 78	\$ 70 6	\$ 127 12	\$ 0 0	\$ 34 3	\$ 3 0	\$1081 100
Owners Additional % of Total	36	\$ 855 60	\$ 198 14	\$ 256 18	\$ 1 0	\$ 84 6	\$ 19 1	\$1413 100
Rentors % of Total	3	\$ 279 23	\$ 268 23	\$ 572 48	\$ 0 0	\$ 40 3	\$ 32 3	\$1191 100
OPERATING UNIT 2560 ACRES								
Owners % of Total	4	\$1653 53	\$1150 37	\$ 288 9	\$ 0 0	\$ 0 0	\$ 0 0	\$3091 100
Owners- Additional % of Total	32	\$2630 58	\$1464 32	\$ 377 8	\$ 10 0	\$ 31 1	\$ 22 0	\$4534 99.4
Rentors % of Total	1	\$1825 43	\$2429 57	\$ 0 0	\$ 0 0	\$ 0 0	\$ 0 0	\$4254 100



in which security of tenure can be achieved, fairly substantial advantages can occur to both the landlord and tenant. Such a situation will make it desirable for the tenant to re-invest at least a portion of his savings in farm improvements as the opportunity will be in evidence to receive a share of the increases in crop yield or other advantages of economic value that accrue to the farm because of such investment. The short term lease, however, under which the tenant frequently finds it necessary to farm, is not conducive to such a practice. Under a knowledge that he will remain upon a particular farm but one or two years, the tenant will attempt to secure the largest possible immediate income regardless of the tendency to increase soil erosion and reduce fertility. At the present time, however, the only way in which a great many farmers can eventually become owners is the accumulation assets made possible by renting a farm. Reference to Table 17 indicates that the 15 tenants had an average gross income of \$950 and the 73 owner-operators had a gross income of \$863, while the owner-operators renting additional land had an average total income of \$2265. Additional land can frequently be rented at a figure that will not greatly exceed the taxes. Such a situation permits the use of land at a cost much less than is possible under ownership. This explains in part the increase in the number of part-owners that has occurred in the past two decades.

In this particular area, the greatest opportunity to carry on a mis-land use practice is probably associated with the farm and ranch operator who find an opportunity to rent this additional land. The land under lease is frequently owned by non-residents who offer little, if any suggestion as to whether or not erosion or a reduction in fertility is becoming a problem. Under a system of competitive bidding, the present user has a feeling that he may loose control of land. As





LAND USE SURVEY

SUMMARY OF DETAILED SCHEDULES  
LIVESTOCK NUMBERS BY TENURE

Table 17

Tenure	No. of Operating Units	Cows	Heifers	Bulls	Steers	Dairy		Sheep	Horses	Swine	Total Number Animal Units
						Cows	Other				
OPERATING UNITS 0-320 ACRES											
Owners Animal Units	15	2	2	0	0	1	0	0	3	1	7.3
Rentors Animal Units	2	2	1	0	0	1	0	0	3	.3	18.20
		6	4	.5	2	2.5	0	0	5	1.5	
		6	2.1	.6	1.3	2.7	0	0	5	.5	
OPERATING UNITS 320-640 ACRES											
Owners Animal Units	29	5	3	0	1	2	0	24	5	1	20.3
Owner-Additional Animal Units	10	5	2	0	1	2	0	5	5	.3	23.70
		8	5	.4	1	2		21	4	3	
Rentors Animal Units	8	8	3	.5	.6	2.6		4	4	1	15.30
		3	4	0	2	3	0	0	4	4	
		3	3	0	1.3	3	0	0	4	1	
OPERATING UNITS 640-1280 ACRES*											
Owner Animal Units	19	9	7	0	3	0	0	21	6	1	26.40
Owner-Additional Animal Units	23	9	4.1	1	2	0	0	4	6	.3	36.20
		14	10	1	10	2	0	14	5	4	
Rentor Animal Units	1	14	5.9	1	3.6	2	0	2.7	5	1	15.4
		6	9	1	4	0	0	0	0	0	
		6	5.5	1.3	2.6	0	0	0	0	0	

\*Two farms omitted from this group because of insufficient data.





LAND USE SURVEY  
SUMMARY OF DETAILED SCHEDULES  
LIVESTOCK NUMBERS BY TENURE  
Table 17  
(Continued)

Tenure	No. of Operating Units	Cows	Heifers	Bulls	Steers	Dairy		Sheep	Horses	Swine	Total Number Animal Units
						Cows	Other				
OPERATING UNITS OF 1280-2560 ACRES*											
Owner Animal Units	4	17	13	1	7	0	0	0	6	1	36.6
		17	8	1.3	4	0	0	0	6	.3	
Owner-Additional Animal Units	33	20	14	1	8	1	0	77	8	2	60.4
		20	8.7	1.3	5.4	1	0	15	8	1	
Rentors Animal Units	3	12	11	1	7	0	0	2	13	2	39
		12	7	1.3	4	0	0	0	13	1.6	
*Four Farms omitted because of insufficient data											
OPERATING UNITS OF 2560 ACRES AND ABOVE*											
Owner Animal Units	4	60	31	1.5	9	0	0	512	12	1	201.
		60	19	2	6	0	0	102	12	.3	
Owner-Additional Animal Units	28	85	45	4	23	0	0	538	15	2	255.8
		85	27.5	4.8	15.3	0	0	107.6	15	.6	
Rentor Animal Units	1	12	2	1	7	0	0	1326	11	3	296.
		12	1.22	1.3	4.4	0	0	255.2	11	1	

\*Four farms omitted because of insufficient data



this situation is frequently the case, these non-resident lands are often subjected to heavier grazing than the resident owned lands. Such lands also come in for a greater proportion of speculative cash crops and therefore enhance the tendency to carry on a farm practice that is not well suited to the soil types.

Profits in the livestock business, however, come from the inexpensive gains made possible by summer pasturing. If there is little grass there is little gain. An operator that has his range lands under control will recognize this situation at least in part. When the lands are not under control, as is occasionally the case in areas of a high degree of non-resident ownership, everyone will, in effect, try to get the grass first; a situation having a damaging effect on the ranges. As already suggested, lands of low carrying capacity that, because of diversified ownership are subject to destructive use practices, might well be placed under a much more satisfactory control by the organization of a grazing district.

It should not be inferred from the above discussion, however, that all non-resident lands or leased lands are mis-used. Under a long term lease or other effective means of control, there is little sound incentive to carry on abusive practices, a fact that is at least occasionally recognized. Referring to the following tables it can be seen that the owners renting additional land had, as a rule, a larger gross farm return than either those who owned or those renting the land they operated. In addition to securing the advantage of leasing at a figure below what it would cost under ownership, the farms in this group had, as a rule, larger numbers of livestock and crop acreages than farms in other groups. The farms and ranches included in this group are, for the most part, the most aggressive operators. Where sound judgment is used and where the





LAND USE SURVEY  
SUMMARY OF DETAILED SCHEDULES  
CROPS AND PRODUCTION BY TENURE  
Table 18

Tenure	No. of Units	Alfalfa Hay		Thistle Hay		Grain Hay		Oats		Barley		Corn Grain		Corn Fodder		Winter Wheat		Spring Wheat		Rye	
		A	Prod	A	Prod	A	Prod	A	Prod	A	Prod	A	Prod	A	Prod	A	Prod	A	Prod	A	Prod

OPERATING UNIT 0-320 ACRES

Owners	15	8	.57	3	1	3	.46	5	35	6	69	22	90	1	0	3	16	14	68	0	1
									6.36		12.23		4.05		.5		4.66		4.86		3.0
Rentors	2	17	.39			20	.55	2.5	30	14	280							47	440		
									12.		20.								9.26		

OPERATING UNIT 320-640 ACRES

Owners	29	15	.57	0	1	8	.72	4	29	1	9	13	51	4	1	9	102	30	278	1	24
									6.95		9.33		3.95		.45		11.58		9.23		18.59
Owners Additional	10	4	.60	4	2.1	11.7	.83	11.7	8	1.5	2.5	35.5	45.5					51	350		
									6.88		1.66		1.38						6.87		
Rentors	8	11	.65	1	1	6	.44	14	24	4	43	14	152	4	2			179	847	3	27
									1.85		11.38		10.75		.40				4.43		8.00

OPERATING UNIT 640-1280 ACRES

Owners	19	13	.80			9	.58	6	64	1	9	27	150	2	1.8	5	15	54	428	1	2.6
									10.43		7.29		5.50		.50		2.85		7.95		2.63
Owners Additional	23	17	.71	5	5	10	.75	10	91	3	26	19	195	3	1			69	513	6	29.3
									9.46		7.65		10.27		.45				7.50		5.19
Rentor	1	15	.80											57	25			200	1200		
															.43				6.		





LAND USE SURVEY  
SUMMARY OF DETAILED SCHEDULES  
CROPS AND PRODUCTION BY TENURE  
Table 18  
(Continued)

Tenure	No. of Units	Alfalfa Hay		Thistle Hay		Grain Hay		Oats		Barley		Corn Grain		Corn Fodder		Winter Wheat		Spring Wheat		Rye	
		A	Prod	A	Prod	A	Prod	A	Prod	A	Prod	A	Prod	A	Prod	A	Prod	A	Prod	A	Prod
		OPERATING UNIT 1280-2560 ACRES																			
Owners	4	4	4	1.13		22	20	9	87			9	0					40	204	19	150
							.92		10.				0						5.03		7.89
Owner Additional	33	32	21	8	5	21	19	8	76	1	26	28	76	6	32	4	2400	1591	10431	5	12
			.67		.71		.90		11.19		19.23		2.76		5.79		16.55		6.55		2.
Rentors	3	9	2			79	12									18	359	45	431	8	20
			.21				.15										19.60		9.29		2.40

OPERATING UNIT 2560 ACRES AND ABOVE																					
Owners	4	49	31			7.5	2	5	0	2.5	0	5	0			22	288				76.
			.63				.27		0	0	0		0				12.82				
Owner Additional	32	126	95	3	0	20	18	5	8	1	3	12	29	2	0	2	31	41	534	3	21
			.76		.50		.90		1.71		4.16		2.50		0		12.84		13.03		7.85
Rentor	1	50	15			100	100							80	50			70	334		
			.30				1.00								.62				4.77		



influence of the continuation of an established land use practice on the community as a whole is given consideration, the leasing of additional land, to aid in creating a more economical operating unit, is a practice that can be condoned.

A summary of important data secured in the general land use survey, classified on a basis of tenure and size of the operating unit, is shown in Tables 19, 20 and 21. The information and relationships shown by these data are very similar to that already discussed. Of the total of 772 units included in the survey, 49 percent or 380 were owners renting additional land, 42 percent or 324 were strictly owners and 68 or 9 percent were renters or tenants. The ratio of ownership by the size of the operating unit is shown by the following data.

Group	Acres in operating unit	No. of farms	PROPORTION OF OWNERSHIP BY		
			Owners	Owners additional	Renters
			(Percent of total)		
I	285	57	81	--	19
II	570	154	77	9	14
III	980	198	43	48	9
IV	1851	183	27	66	7
V	3592	89	19	79	2
VI	7162	46	6	91	3
VII	13836	31	10	84	6
VIII	34820	14	--	14	--
Total or average	2854	772	42	49	9

The ratio of owners to the total number of farms decreases as the size of the operating unit becomes larger, while the number of owners renting additional land becomes larger in almost the reverse proportion. The largest proportion of tenants among all the farms considered are in the group of farms having the smaller units. Twenty-seven percent of the units considered in this study are found in the first three groups having 494 acres under control. There were 211 in





these two groups of which 15 percent were renters. A scrutiny of Table 19 suggests that for the most part the farms and ranches classified in the owner-additional group have, by this base, the largest gross income. Also the larger the farm the larger the gross increase regardless of tenure.

The average number of livestock, the size of the operating unit and the rate of stocking, by tenure, is shown by the following data:

	No. of farms	Acres in operating unit	Numbers of livestock units	Acres per animal unit
Owners	324	1138	37	31
Owners-additional	380	4556	166	27
Renters	68	1511	43	35
Average		2854	101	28

On a basis of sound land use, approximately a third of the necessary feed will have to come from supplementary crops since the average carrying capacity is approximately 40 acres per animal unit.

The renting of additional land is often a means of providing a desirable balance in the farm organization and thus aid in establishing better land use. Unless the land is under lease for a period of years, however, there is a chance that it will not be used on a conservative basis. The reasons for this have already been briefly discussed. After adjustments have been achieved, there is also the problem of measures to maintain them, and the solution will be influenced by variation in the tenure. The individual should give consideration in the development of his management practices to their influence on the community. Destructive land use, in the end, must of necessity result to the detriment of not only those who make direct use of the land but also those who live in the town and villages and in fact to all people in the area. Likewise desirable land use will be beneficial.





LAND USE SURVEY  
SUMMARY OF SHORT FORM SCHEDULE  
INCOME BY TENURE  
Table 19

No. Operating Units	Acres Operated	Cattle	Sheep	Hogs	Poultry	Turkeys	Wheat	Total Income
Average Size of Operating Unit -- 285 Acres								
46 Owners	277	No. Stock Income \$ 162	9 4 \$ 19	1 75 \$	31 70 \$	.3 6 \$	108 99 \$	\$ 431
0 Owner-Additional	0	No. Stock Income 0 0	0 0	0 0	0 0	0 0	0 0	0 0
11 Renter	320	No. Stock Income 8 \$ 144	27 130 \$	3 23 \$	15 34 \$	0	135 124 \$	\$ 455
Average Size of Operating Unit -- 570 Acres								
119 Owner	572	No. Stock Income 14 \$ 252	16 77 \$	1 75 \$	29 65 \$	1 20 \$	143 132 \$	\$ 621
14 Owner-Additional	548	No. Stock Income 22 \$ 396	16 77 \$	3 225 \$	48 108 \$	.2 4 \$	475 437 \$	\$ 1247
21 Renter	575	No. Stock Income 11 \$ 198	2 10 \$	1 75 \$	31 70 \$	.3 6 \$	188 173 \$	\$ 532
Average Size of Operating Unit -- 980 Acres								
86 Owner	929	No. Stock Income 22 \$ 396	22 106 \$	1 75 \$	26 58 \$	3 60 \$	236 217 \$	\$ 912
94 Owner-Additional	1026	No. Stock Income 28 \$ 504	21 101 \$	2 150 \$	40 90 \$	1 20 \$	281 259 \$	\$ 1124
18 Renter	988	No. Stock Income 15 \$ 270	.2 1 \$	1 75 \$	25 56 \$	3 60 \$	389 358 \$	\$ 820
Average Size of Operating Unit -- 1851 Acres								
50 Owner	1799	No. Stock Income 36 \$ 648	106 509 \$	1 75 \$	26 58 \$	2 40 \$	64 59 \$	\$ 1389
120 Owner-Additional	1891	No. Stock Income 67 \$ 1206	98 470 \$	1 75 \$	32 72 \$	1 20 \$	250 230 \$	\$ 2073
13 Renter	1705	No. Stock Income 31 \$ 558	24 115 \$	1 75 \$	33 74 \$	0	592 545 \$	\$ 1367





LAND USE SURVEY  
SUMMARY OF SHORT FORM SCHEDULE  
INCOME BY TENURE  
Table 19  
(Continued)

No. Operating Units	Acres Operated	Cattle	Sheep	Hogs	Poultry	Turkeys	Wheat	Total Income
Average Size of Operating Unit -- 3592 Acres								
17 Owner	3325	No. Stock 90 Income \$1620	71 \$ 341	1 \$ 75	42 \$ 95	1 \$ 20	92 \$ 85	\$2236
70 Owner-Additional	3627	No. Stock 100 Income \$1800	210 \$1008	1 \$ 75	26 \$ 58	1 \$ 20	317 \$ 292	\$3253
2 Renter	4640	No. Stock 15 Income \$ 270	604 \$2899	2 \$ 150	0	25 \$ 500	167 \$ 154	\$3973
Average Size of Operating Unit -- 7162 Acres								
3 Owner	654	No. Stock 132 Income \$3276	367 \$1762	1 \$ 75	16 \$ 36	1 \$ 20	0	\$4269
42 Owner-Additional	7240	No. Stock 157 Income \$2826	562 \$2698	1 \$ 75	36 \$ 81	0	96 \$ 88	\$5768
1 Renter	5760	No. Stock 160 Income \$2880	0	6 \$ 450	0	0	0	\$3330
Average Size of Operating Unit -- 13836 Acres								
3 Owner	14056	No. Stock 515 Income \$9270	728 \$3494	0	18	0	0	\$12804
26 Owner-Additional	13638	No. Stock 290 Income \$5220	808 \$3878	2 \$ 150	33 \$ 74	0	18 \$ 17	\$9339
2 Renter	16080	No. Stock 360 Income \$6480	1500 \$7200	0	0	0	0	\$13680
Average Size of Operating Unit -- 34820 Acres								
14 Owner-Additional	34820	No. Stock 747 Income \$13446	2927 \$14050	1 \$ 75	25 \$ 56	0	229 \$ 211	\$27838





LAND USE SURVEY  
SUMMARY OF SHORT FORM SCHEDULE  
ANIMAL UNITS BY TENURE

Table 20

Number of Operating Units	Size of Operating Units	Cattle	Sheep	Horses	Hogs	Total Animal Units
Average Size of Operating Unit -- 285 Acres						
46 Owners	277	9	4	4	1	13
Owner-Additional	0	7.47	.8	4	.32	0
11 Rentors	320	0	0	0	0	16
		8	27	3	3	
		6.64	5.4	3	1	
Average Size of Operating Unit -- 570 Acres						
119 Owners	572	14	16	5	1	20
14 Owner-Additional	548	11.62	3.2	5	.33	27
21 Rentors	575	22	16	5	3	14
		18.26	3.2	5	1	
		11	2	4	1	
		9.13	.4	4	.33	
Average Size of Operating Unit -- 980 Acres						
86 Owners	929	22	22	6	1	29
94 Owner-Additional	1026	18.26	4.4	6	.33	34
18 Rentors	988	28	21	6	2	16
		23.24	4.2	6	.66	
		15	.2	3	1	
		12.45	.04	3	.33	
Average Size of Operating Unit -- 1851 Acres						
50 Owners	1799	36	106	7	1	58
120 Owner-Additional	1891	29.8	21.2	7	.33	84
13 Rentors	1705	67	98	8	1	40
		55.61	19.6	8	.33	
		31	24	9	1	
		25.73	4.8	9	.33	





LAND USE SURVEY  
SUMMARY OF SHORT FORM SCHEDULE  
ANIMAL UNITS BY TENURE

Table 20  
(Continued)

Number of Operating Units	Size of Operating Units	Cattle	Sheep	Horses	Hogs	Total Animal Units
Average Size of Operating Unit -- 3592 Acres						
17 Owners	3325	90	71	10	1	99
70 Owner-Additional	3627	74.70	14.2	10	.3	
2 Rentors	4640	100	210	15	1	
		83.00	42.0	15	.3	
		15	604	5	2	
		12.45	120.8	5	.6	139
Average Size of Operating Unit -- 7162 Acres						
3 Owners	654	132	367	18	1	140
42 Owner-Additional	7240	109.56	73.4	18	.3	
1 Rentors	5760	157	562	25	1	268
		130.31	112.4	24	.3	
		160	0	2	6	
		132.80		2	2	135
Average Size of Operating Unit -- 13836 Acres						
3 Owners	14056	515	728	21	0	594
26 Owner-Additional	13638	427.45	145.6	21		
2 Rentors	16080	290	808	17	2	420
		240.70	161.6	17	.6	
		360	1500	16	0	
		298.80	300.0	16		615
Average Size of Operating Unit -- 34820						
14 Owner-Additional	34820	747	2927	63	1	1269.
		620.01	585.4	63	.3	



LAND USE SURVEY  
SUMMARY OF SHORT FORM SCHEDULES  
CROPS BY TENURE  
Table 21

No. of Operating Units	Size of Oper. Units	Wheat Grain		Wheat Hay		Corn Grain		Corn Fodder		Barley Grain		Barley Hay		Oats Grain	
		A	Prod	A	Prod	A	Prod	A	Prod	A	Prod	A	Prod	A	Prod

Average Size of Operating Unit -- 285 Acres

46	277	17	108	1	1	10	43	1	1	2	26			3	8
Owners			6		1		4		1		13				3
11	320	16	135			5	51							1	5
Rentors			8				10								5

Average Size of Operating Unit -- 570 Acres

119	572	19	143	1	1	8	41	2	1	.4	2	.2	.16	2	12
Owners			8		1		5		.5		.5		.8		6
14	548	61	475			14	122	4	2	2	28			7	14
Owner- Additional			8				9		.5		14				2
21	575	56	188	3	2	25	28	1	.3	2	1			4	40
Rentors			3		.7		1				.5				10

Average Size of Operating Unit -- 980 Acres

86	929	30	236	1	.38	15	92	3	1	1	9			7	69
Owners			8		.38		6		.3		9				10
94	1026	39	281	1	.1	13	91	3	2	1	8			5	30
Owners- Additional			7		.1		7		1		8				6
18	988	71	389	1	1	11	77	7	2	2	17			11	21
Rentors			5		1		7		.3		9				2

Average Size of Operating Unit -- 1851 Acres

50	1799	9	64	1	0	4	20	5	2					3	28
Owners			7		0		5		.4						9
120	1891	35	250	4	2	14	68	4	2	4	13	1	.06	7	68
Owner- Additional			7		.5		5		.5		3		.06		10
13	1705	54	592	3	1	1	2	8	6	1	6			5	10
Rentors			11		.3		2		1		6				2





LAND USE SURVEY  
SUMMARY OF SHORT FORM SCHEDULES  
CROPS BY TENURE  
Table 21  
(Continued)

Oats Hay	Rye Grain		Rye Hay		Alfalfa Hay		Alfalfa Seed		Other Crops Grain		Other Crops Hay		Fallow Land		Idle Land
A	Prod	A	Prod	A	Prod	A	Prod	A	Prod	A	Prod	A	Prod	A	

Average Size of Operating Unit -- 285 Acres

1	1	6	27	1	4	2					3	1	3		11
	1		5	1		.5						1			
1	1	1	0		7	2					4	2	0		34
	1		0			.3						.5			

Average Size of Operating Unit -- 570 Acres

1	1	1	10	.4	7	3	1	32			4	2			
	1		10					32				.5			
		13	115		7	4					9	3			
			9			6						3			
		.3	2		10	9					6	6			
			7			.9						1			

Average Size of Operating Unit -- 980 Acres

1	.26	2	8	1	10	4					6	1	4		6
	.26		4	1		.4						.1			
2	1	3	19	2	10	6					5	4	4		12
	.5		6	2		.6						.8			
3	.1	9	56	1	5	2	7	111					1		47
	.3		6	2		.4		2							

Average Size of Operating Unit -- 1851 Acres

1	0	3	14	1	6	1					3	2	2		8
	0		5	1		1						.6			
2	1	6	18	3	17	8			.2	1	11	7	4		9
	.5		3	1		.4				5		.6			
7	4	5	40	2	10	4					17	4	7		7
	1		8	2		.4						.2			





## LAND USE SURVIVY

# SUMMARY OF SHORT FORM SCHEDULES

# CROPS BY TENURE

Table 21

(Continued)

No. of	Size of	Wheat	Corn	Corn	Barley	Oats
Operating	Oper.	Grain	Grain	Fodder	Hay	Grain
Units	Units	A	A	A	A	A
		Prod	Prod	Prod	Prod	Prod
		A	A	A	A	A

Average Size of Operating Unit -- 3592 Acres												
	3325	8	92	9	5	4	0	8	6	1	0	1
Owner			12		.6		0				0	
70	3627	34	317	2	1	8	24	5	3	1	1	4
Owner-Additional			9		.5		3		.6		7	
2	4640	35	167					40	25			
Antons			5						.6			

[illegible][illegible]

Average Size of Operating Unit -- 34820 Acres									
14	34820	14	229						
Owner -									
Additional			16						



LAND USE SURVEY  
SUMMARY OF SHORT FORM SCHEDULES  
CROPS BY TENURE

Table 21

Oats Hay		Rye Grain		Rye Hay		Alfalfa Hay		Alfalfa Seed		Other Crops Grain		Other Crops Hay		Fallow Land	Idle Land
A	Prod	A	Prod	A	Prod	A	Prod	A	Prod	A	Prod	A	Prod		
Average Size of Operating Unit -- 3592 Acres															
5	2 .4			2	1 .5	22	15 .6					4	1 .25		1
5	4 .8	5	25	6	8	22	16 7	1	13 13			40	33 .8	9	12
						25	8 .3					50	50 1		
Average Size of Operating Unit -- 7162 Acres															
13		83	166			55	49 .8					17	7 .4		26
		2	2	3	3	51	25 .49					45	34 .7	10	
					1										119
Average Size of Operating Unit -- 13836 Acres															
3	2 .6	1	1	2	1 .5	46	32 .69					99	52 .5	3	3
Average Size of Operating Unit -- 34820 Acres															
		5	0	5	2 .4	49	20 .4					152	94 .6		23



1. Name of the person  
 2. Address of the person  
 3. Date of birth  
 4. Date of death

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
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1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
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1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
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1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
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LAND USE ADJUSTMENT  
PROBLEMS ASSOCIATED WITH THE RANGE LIVESTOCK BUSINESS

As indicated in the discussion so far, Campbell County, as well as the whole of northeastern Wyoming, is essentially a livestock area. Therefore a satisfactory farm organization and land use that will maintain fertility and control erosion is concerned largely with the organization and operation of a livestock business essentially on a range basis. It has already been suggested that sound land use practice will not only require material limitation of the production of cash grain, but also a well adjusted balance between the production of supplementary forage crops and the use of the range lands for grazing. Thorough consideration should be given to the replacement of cash grain by feed crops in places where the soil may be suitable but transportation costs to shipping points are so great as to make the production of wheat a questionable venture. Farm practice in such areas as those around Rocky Point and Hilight in northeastern and the south-central portion of Campbell County, could well be concerned with the production of forage crops in place of cash grain even though soil types may be adequate for wheat.

The preliminary conclusions of a cooperative study in Regional Planning, between the Dept. of Agricultural Economics of the University of Wyoming and the A.A.A., indicated that during the period 1924-1934 Campbell County had about 5 percent and the 9 northeastern counties 11 percent more livestock than the available feed would carry. The data in the following table taken from this report, is descriptive of the method used in developing the information that may indicate, in a satisfactory manner, the relationship between number of livestock





\*FEED RESOURCES AND LIVESTOCK EXPRESSED AS CATTLE UNITS IN CAMPBELL COUNTY, WYOMING

Table 22

(1) Year	(2) Pasture Conditions in Percent of Average	(3) Annual Carrying Capacity	(4) Acreage of Grazing Land	(5) **Cattle Units Provided for by Grazing	(6) Cattle Units Pro- vided for by Forage and Grain Crops	(7) Total Cattle Units Pro- vided for by Grazing and Crop Production	(8) Cattle Unit Equivalent of all Live- stock Based on Crops and Mar- kets estimate	(9) Ratio of Cattle Units to Feed and Grazing Resources
1924	101	40	2,974,715	74,368	11,574	85,942	91,355	1.06
1925	88	45	2,952,840	65,616	21,431	87,050	83,198	.96
1926	97	41	2,951,740	71,994	17,613	89,607	87,408	.98
1927	109	37	2,953,790	79,832	22,570	102,402	84,988	.83
1928	96	42	2,953,090	70,312	15,564	85,876	89,997	1.05
1929	96	42	2,946,115	70,146	19,694	89,840	89,987	1.00
1930	81	49	2,942,540	60,052	16,930	76,982	92,786	1.21
1931	89	45	2,978,340	66,185	10,113	76,298	104,644	1.37
1932	86	47	2,930,540	62,352	15,086	77,438	95,311	1.23
1933	92	43	2,941,040	68,396	10,111	78,507	107,773	1.37
1934	76	53	2,945,000	55,566	12,085	67,651	121,055	1.79
Average 1924-34	92	40	2,951,796	73,795	15,706	89,501	94,409	1.05

\*Report of Cooperative Project in Regional Agricultural Planning, 1935

\*\*Cattle units equals 83% of all beef cattle, 1.1% of dairy cattle, 5 sheep,  
3 sows on hand January 1st, 1.2 horses.





and available feed. In this case it is specific for Campbell County, the area included in the present study. The information portrays the story of the livestock industry during the past ten years and emphasises the need for a well planned balance between feed and livestock, giving consideration to the influence of periodic drought. During the period from 1924 to 1929, pasture conditions as influenced by precipitation were above the average. This meant that there was not only fair feed on the ranges but that it was also possible to secure significant yields of forage and grain under cultivation. During this period the data seems to indicate that there was only a reasonable increase in the numbers of livestock. However, the rapid increases which occurred during the period 1929 to 1935 points to the fact that certain tendencies not consistent with sound land use were also occurring in the earlier period. Prices of beef rose from about 6¢ per pound in 1924 to around 10¢ in 1928, a situation which frequently caused the ranch operator to reduce shipment of cows and heifers. Thus the increase in numbers which did occur during this period were a class of cattle which would and did provide for the rapid increases which followed. The consistent decrease in price from 1930 to less than 4¢ per pound in 1934 aggravated an already bad situation; since, during this period, the rancher, hoping for immediate recovery of prices, held back all classes of cattle. Data in the Table referred to suggests that relationship of livestock to available feed changed from one possibly near normal in 1929 to a situation where there was almost 50 percent too many livestock in 1934. The Federal purchase program of 1934 extended considerable immediate relief. The drought and the reaction of many of the ranch operators, to the price situation has emphasized, however, the need of sound land use based on a program of conservative numbers and the carry-over of an





adequate supply of supplementary feed. That this is desirable and necessary has again been demonstrated by the drought of 1936.

As already suggested, conservative numbers does not necessarily mean a reduction in income to the ranch operators. This fact can, I believe, be demonstrated under actual practice, by most ranch organizations. The data and discussion following indicate what might be expected and would likely be required in order to effectively reduce numbers but yet maintain income.

OPERATING UNIT 12 SECTIONS  
Supplemental hay and grain sufficient for 2.5 months  
Cattle Ranch Organization selling 2 yr. old steers  
CAMPBELL COUNTY

	<u>Ave. rate of stocking 1924-34</u>	<u>Suggested rate of stocking future minimum</u>
Cows	114	95
Heifers 2's	20	17
Heifers 1's	21	18
Steers 1's	40	40
Steers 2's	39	39
Bulls	6	5
TOTAL	<u>240</u>	<u>214</u>

Ave. calf crop end of season 70%  
210 animal units

Ave. calf crop end of season 83%  
186 animal units

After making necessary replacements there will be for sale:

39 Steers at 840#	© 6.50	\$2129.	39 steers at 840#	© 6.50	\$2129.
18 Heifer Calves 360#	© 6.75	437.	21 Heifer Calves at 360#	© 6.75	510.
16 Cull Cows 900#	© 4.50	648.	14 Cull Cows at 900#	© 4.50	567.
TOTAL		<u>\$3214.</u>			<u>\$3206.</u>

Without giving consideration to other factors that have an influence on the rate of stocking, the above data indicates that an increase in the calf crops from an average of 70 percent to an average of 83% will maintain the gross income of the ranch and yet effect a reduction of 11 percent in the total number of livestock even where the sale of 2 year old steers is the practice. If calves are sold a ten percent increase





in the calf crop will provide a comparable ranch income under a 14 percent reduction in the numbers of livestock. This is indicated by the following data:

	<u>Present Situation</u>	<u>Suggested Situation</u>
Cows	160	140
Heifers 2's	27	24
Heifers 1's	28	25
Bulls	<u>8</u>	<u>7</u>
	223	191
70% Calf crop		80% Calf crop
210 animal units		183 animal units

FOR SALE:			
55 Steer Calves	\$1540.	375 @ 7.45	55 Steer Calves \$1540.
27 Heifer "	656.	360 @ 6.75	30 Heifer " 729.
21 Cows	<u>851.</u>	900 @ 4.50	19 Calves <u>770.</u>
TOTAL	\$3047.		\$3039.

The size of the ranch operating units indicated by these figures were all fairly comparable suggesting in both cases a reduction from 210 to 185 cattle units, or a change of approximately 12 percent. The number of breeding cows are of course greater on a ranch that makes a practice of selling calves than for an organization of a similar size that sells 2 year old steers. The former ranch will require a larger amount and a higher quality of feed for herd maintenance than one which sells older cattle. For this reason the influence of the reduced numbers will be about the same in both cases even though a larger change is indicated for ranches of the latter type. While no data are shown specifically for a ranch that sell yearling steers, the principals given will apply equally well.

There are, of course, a number of other factors that also have a favorable bearing on the present idea. In the above figures no consideration has been given to the possibility of producing heavier calves under a system of reduced numbers. Since more feed and better range

• *Journal of the American Medical Association*, 2000; 284: 1039-1044

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*(continued)*

1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15. 16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29. 30. 31. 32. 33. 34. 35. 36. 37. 38. 39. 40. 41. 42. 43. 44. 45. 46. 47. 48. 49. 50. 51. 52. 53. 54. 55. 56. 57. 58. 59. 60. 61. 62. 63. 64. 65. 66. 67. 68. 69. 70. 71. 72. 73. 74. 75. 76. 77. 78. 79. 80. 81. 82. 83. 84. 85. 86. 87. 88. 89. 90. 91. 92. 93. 94. 95. 96. 97. 98. 99. 100. 101. 102. 103. 104. 105. 106. 107. 108. 109. 110. 111. 112. 113. 114. 115. 116. 117. 118. 119. 120. 121. 122. 123. 124. 125. 126. 127. 128. 129. 130. 131. 132. 133. 134. 135. 136. 137. 138. 139. 140. 141. 142. 143. 144. 145. 146. 147. 148. 149. 150. 151. 152. 153. 154. 155. 156. 157. 158. 159. 160. 161. 162. 163. 164. 165. 166. 167. 168. 169. 170. 171. 172. 173. 174. 175. 176. 177. 178. 179. 180. 181. 182. 183. 184. 185. 186. 187. 188. 189. 190. 191. 192. 193. 194. 195. 196. 197. 198. 199. 200. 201. 202. 203. 204. 205. 206. 207. 208. 209. 210. 211. 212. 213. 214. 215. 216. 217. 218. 219. 220. 221. 222. 223. 224. 225. 226. 227. 228. 229. 230. 231. 232. 233. 234. 235. 236. 237. 238. 239. 240. 241. 242. 243. 244. 245. 246. 247. 248. 249. 250. 251. 252. 253. 254. 255. 256. 257. 258. 259. 260. 261. 262. 263. 264. 265. 266. 267. 268. 269. 270. 271. 272. 273. 274. 275. 276. 277. 278. 279. 280. 281. 282. 283. 284. 285. 286. 287. 288. 289. 290. 291. 292. 293. 294. 295. 296. 297. 298. 299. 300. 301. 302. 303. 304. 305. 306. 307. 308. 309. 310. 311. 312. 313. 314. 315. 316. 317. 318. 319. 320. 321. 322. 323. 324. 325. 326. 327. 328. 329. 330. 331. 332. 333. 334. 335. 336. 337. 338. 339. 340. 341. 342. 343. 344. 345. 346. 347. 348. 349. 350. 351. 352. 353. 354. 355. 356. 357. 358. 359. 360. 361. 362. 363. 364. 365. 366. 367. 368. 369. 370. 371. 372. 373. 374. 375. 376. 377. 378. 379. 380. 381. 382. 383. 384. 385. 386. 387. 388. 389. 390. 391. 392. 393. 394. 395. 396. 397. 398. 399. 400. 401. 402. 403. 404. 405. 406. 407. 408. 409. 410. 411. 412. 413. 414. 415. 416. 417. 418. 419. 420. 421. 422. 423. 424. 425. 426. 427. 428. 429. 430. 431. 432. 433. 434. 435. 436. 437. 438. 439. 440. 441. 442. 443. 444. 445. 446. 447. 448. 449. 450. 451. 452. 453. 454. 455. 456. 457. 458. 459. 460. 461. 462. 463. 464. 465. 466. 467. 468. 469. 470. 471. 472. 473. 474. 475. 476. 477. 478. 479. 480. 481. 482. 483. 484. 485. 486. 487. 488. 489. 490. 491. 492. 493. 494. 495. 496. 497. 498. 499. 500. 501. 502. 503. 504. 505. 506. 507. 508. 509. 510. 511. 512. 513. 514. 515. 516. 517. 518. 519. 520. 521. 522. 523. 524. 525. 526. 527. 528. 529. 530. 531. 532. 533. 534. 535. 536. 537. 538. 539. 540. 541. 542. 543. 544. 545. 546. 547. 548. 549. 550. 551. 552. 553. 554. 555. 556. 557. 558. 559. 560. 561. 562. 563. 564. 565. 566. 567. 568. 569. 570. 571. 572. 573. 574. 575. 576. 577. 578. 579. 580. 581. 582. 583. 584. 585. 586. 587. 588. 589. 590. 591. 592. 593. 594. 595. 596. 597. 598. 599. 600. 601. 602. 603. 604. 605. 606. 607. 608. 609. 610. 611. 612. 613. 614. 615. 616. 617. 618. 619. 620. 621. 622. 623. 624. 625. 626. 627. 628. 629. 630. 631. 632. 633. 634. 635. 636. 637. 638. 639. 640. 641. 642. 643. 644. 645. 646. 647. 648. 649. 650. 651. 652. 653. 654. 655. 656. 657. 658. 659. 660. 661. 662. 663. 664. 665. 666. 667. 668. 669. 670. 671. 672. 673. 674. 675. 676. 677. 678. 679. 680. 681. 682. 683. 684. 685. 686. 687. 688. 689. 690. 691. 692. 693. 694. 695. 696. 697. 698. 699. 700. 701. 702. 703. 704. 705. 706. 707. 708. 709. 710. 711. 712. 713. 714. 715. 716. 717. 718. 719. 720. 721. 722. 723. 724. 725. 726. 727. 728. 729. 730. 731. 732. 733. 734. 735. 736. 737. 738. 739. 740. 741. 742. 743. 744. 745. 746. 747. 748. 749. 750. 751. 752. 753. 754. 755. 756. 757. 758. 759. 760. 761. 762. 763. 764. 765. 766. 767. 768. 769. 770. 771. 772. 773. 774. 775. 776. 777. 778. 779. 780. 781. 782. 783. 784. 785. 786. 787. 788. 789. 790. 791. 792. 793. 794. 795. 796. 797. 798. 799. 800. 801. 802. 803. 804. 805. 806. 807. 808. 809. 810. 811. 812. 813. 814. 815. 816. 817. 818. 819. 820. 821. 822. 823. 824. 825. 826. 827. 828. 829. 830. 831. 832. 833. 834. 835. 836. 837. 838. 839. 840. 84

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1. The first group of people who are not in the labor force are those who are not in the labor force because they are not in the labor force.

conditions can be developed under a system of reduced numbers, it is only logical to assume that greater gains in weight in the market cattle can be made. Under the present situation about 30 acres are allowed per animal. Under the suggested system 35 acres will be available. (These figures should not be confused with the 40 acre average for the County -- the difference being due to the fact that as high as 25 percent of necessary feed comes from hay and other forage crops). An element of importance, in connection with available feed, is associated with the fact that a smaller portion of the total feed available is needed for maintenance, under a system of reduced numbers. This situation is shown by the following data which refers to the ranch organization selling 2 year old steers.

Feed requirements for a 12 section ranch selling 2 yr. old steers.

|             | Present Situation |         | 9/ T.D.N. Feed<br>Requirements<br>for maintenance | Suggested Situation |         |
|-------------|-------------------|---------|---|---------------------|---------|
|             | No.               | T.D.N.  |   | No.                 | T.D.N.  |
| Cows        | 114               | 335,958 | 2947  | 95                  | 279,965 |
| Heifers 2's | 20                | 45,860  | 2293  | 17                  | 38,981  |
| " 1's       | 21                | 33,033  | 1573  | 18                  | 28,314  |
| Steers 1's  | 40                | 65,520  | 1638  | 40                  | 65,520  |
| Steers 2's  | 39                | 93,639  | 2401  | 39                  | 93,639  |
| Bulls       | 6                 | 22,338  | 3723  | 5                   | 18,615  |
|             | 240               | 596,348 |   | 214                 | 525,034 |

These figures indicate that approximately 12 percent less feed is required for maintaining the smaller herd. This is an important amount since the difference is approximately comparable to 70 tons of hay, 700 acres of pasture, 800 hundred weight of grain or 100 acres of crops. Thus on a basis of a similar gain in weight, a significant surplus of feed can be had. If this extra forage is fed to the livestock, greater weight in the market cattle certainly can be expected. A greater weight or gain will effect a corresponding reduction in the calf crop necessary





to achieve similar returns. In addition to the above situation, if the ranch secured an additional weight of 40 pounds in the heifer calves, 60 pounds in the two-year old steers and 50 pounds in the cows sold, all conservative estimates, there would be an increase in income on a basis of the same prices, a sum equal to approximately \$240. There would, however, very likely be opportunity to increase this sum since the better finish of the cattle would tend to bring a higher price. In addition to these factors there are other opportunities for the smaller ranch to maintain profits. Labor costs certainly need be no higher and may well be <sup>less.</sup> well. A reduction in salt, vaccine and veterinary expense and taxes could be effected, all of which would tend to off-set the influence which a reduction in numbers would have in reducing income.

While the above information indicates that a conservative reduction in numbers of cattle will create a more desirable land use but yet maintain income, it should not be assumed that such a change would be possible except under a very high type of management. An increase of 10 or 15 percent in the calf crop will require constant and intelligent consideration of all the factors, of management, associated with the range cattle industry. The data, given, however, doesn't necessarily represent an optimum for all conditions. There will be many opportunities to carry out a land use and management practice that will show greater returns than indicated. Neither should it be assumed that the reduction in numbers suggested is always all that is necessary to create a situation that will permit generally desirable land use. To establish a well balanced land use program that will, over a period of years, maintain soil fertility and control erosion, may frequently require a reduction in the numbers of livestock in excess of the suggestion made.





Any change likely to take place under actual conditions will occur probably over a period of years. For this reason, and in order to approach a mean, the influence of a reduction of 10 to 12 percent was given consideration in the present study.

While much of the discussion in this report related to the livestock industry is concerned with cattle, the numbers of sheep have been increased until at the present time they are about as important as cattle. The principle in analysis given, however, will apply equally well to sheep. The factors which govern the successful management of cattle are essentially the same as those which determine success in the sheep business. Reduced number of sheep will have substantially the same influence on land use as a reduction in cattle. Since greater damage to the range is usually sustained by a constant overstocking of sheep, than by cattle, the need for reduced sheep numbers is occasionally more apparent. The sheep business, however, will respond to a desirable land use practice equally well, if not better than cattle. The various factors that will permit the maintenance of profits under a reduction in cattle numbers is just as applicable to a reduction in number of sheep. In line with this discussion, relationship between the numbers of livestock and available feed on the 190 farms included in the Land Use survey was determined, as it is thought the data represents a fairly reliable index to the rate of stocking on the various types of farms in the whole of Campbell County. Information recorded on the land use survey schedules show the quantities of the various kinds of forage and grain produced and fed to livestock, the acres of pasture available, as well as the numbers of the various kinds of livestock. Table 23 following, represents summaries of such data grouped by size of operating unit.

In order that hay, grain, other forage crops and pasture be placed





LAND USE SURVEY  
SUMMARY OF DETAILED SCHEDULES  
FEED CONSUMED BY LIVESTOCK\*

Table 23

| Item                                | Number of<br>Operating<br>Units | Hay     |        |       |         | Straw | Grain           |                 |       |        |       | Misc** |     |
|-------------------------------------|---------------------------------|---------|--------|-------|---------|-------|-----------------|-----------------|-------|--------|-------|--------|-----|
|                                     |                                 | Alfalfa | Native | Grain | Thistle |       | Winter<br>Wheat | Spring<br>Wheat | Corn  | Barley | Oats  |        | Rye |
| OPERATING UNIT 0-320 ACRES          |                                 |         |        |       |         |       |                 |                 |       |        |       |        |     |
| Tons or Bushels                     | 17                              | 1.58    | 1.7    | 2.3   | .12     | 0     | 4.88            | 40.11           | 73.23 | 40.    | 5.76  | 0      | 0   |
| Pounds of                           |                                 |         |        |       |         |       |                 |                 |       |        |       |        |     |
| T.D.N's Consumed                    |                                 | 1639    | 2003   | 2610  | 99      | 0     | 239             | 1966            | 3515  | 1520   | 102   | 0      | 0   |
| OPERATING UNITS 320-640 ACRES       |                                 |         |        |       |         |       |                 |                 |       |        |       |        |     |
| Tons or Bushels                     | 45                              | 3.0     | 2.06   | 2.75  | .75     | .31   | 15.44           | 63.51           | 77.   | 13.    | 17.   | 11.64  | X   |
| Pounds of                           |                                 |         |        |       |         |       |                 |                 |       |        |       |        |     |
| T.D.N's Consumed                    |                                 | 3095    | 2476   | 3119  | 592     | 80    | 756             | 3112            | 3717  | 485    | 355   | 524    | 145 |
| OPERATING UNIT 640-1280 ACRES       |                                 |         |        |       |         |       |                 |                 |       |        |       |        |     |
| Tons or Bushels                     | 43                              | 2.55    | 4.34   | 5.09  | 2.04    | 1.4   | 0               | 96.67           | 86.   | 10.58  | 34.55 | 4      | X   |
| Pounds of                           |                                 |         |        |       |         |       |                 |                 |       |        |       |        | 100 |
| T.D.N's Consumed                    |                                 | 2641    | 5186   | 5763  | 1605    | 360   | 0               | 4737            | 4132  | 402    | 726   | 178    | 195 |
| OPERATING UNITS 1280-2560 ACRES     |                                 |         |        |       |         |       |                 |                 |       |        |       |        |     |
| Tons or Bushels                     | 40                              | 7.62    | 5.57   | 13.27 | 4.2     | 0     | 8.5             | 72              | 70.7  | 7.5    | 79.4  | 13.3   | X   |
| Pounds of                           |                                 |         |        |       |         |       |                 |                 |       |        |       |        |     |
| T.D.N's Consumed                    |                                 | 7869    | 6656   | 15067 | 3312    | 0     | 416             | 3167            | 3390  | 285    | 1667  | 596    | 131 |
| OPERATING UNIT 2560 ACRES AND ABOVE |                                 |         |        |       |         |       |                 |                 |       |        |       |        |     |
| Tons or Bushels                     | 32                              | 17.6    | 33.6   | 12.3  | 2.3     | 0     | 5.5             | 50              | 43    | 2.     | 6.31  | 13.7   | 0   |
| Pounds of                           |                                 |         |        |       |         |       |                 |                 |       |        |       |        |     |
| T.D.N's Consumed                    |                                 | 18189   | 90977  | 13900 | 1765    | 0     | 269             | 2433            | 2055  | 67     | 131   | 619    | 0   |

\*Amount fed is the quantity produced less amount sold and that necessary to maintain below the ffeed in inventory

\*\*Miscellaneous ffeed not given on this table, but accounted for by its equivalent number of total digestible nutrients (T.D.N's.)

4128 T.D.N's required to maintain one animal unit one year (as determined by Agricultural Experiment Station, University of Wyoming.)

103 Total digestible nutrients in one acre grain not harvested and

163 T.D.N's per acre fodder not harvested.



| Cotton |          |            |       |         |       |      |          |            |       | Wool    |       |      |          |            |       |         |       |      |          | Hemp       |       |         |       |      |          |            |       |         |       |
|--------|----------|------------|-------|---------|-------|------|----------|------------|-------|---------|-------|------|----------|------------|-------|---------|-------|------|----------|------------|-------|---------|-------|------|----------|------------|-------|---------|-------|
| Area   | Planting | Harvesting | Yield | Quality | Value | Area | Planting | Harvesting | Yield | Quality | Value | Area | Planting | Harvesting | Yield | Quality | Value | Area | Planting | Harvesting | Yield | Quality | Value | Area | Planting | Harvesting | Yield | Quality | Value |
| 100    | 100      | 100        | 100   | 100     | 100   | 100  | 100      | 100        | 100   | 100     | 100   | 100  | 100      | 100        | 100   | 100     | 100   | 100  | 100      | 100        | 100   | 100     | 100   | 100  | 100      | 100        | 100   | 100     | 100   |
| 200    | 200      | 200        | 200   | 200     | 200   | 200  | 200      | 200        | 200   | 200     | 200   | 200  | 200      | 200        | 200   | 200     | 200   | 200  | 200      | 200        | 200   | 200     | 200   | 200  | 200      | 200        | 200   | 200     | 200   |
| 300    | 300      | 300        | 300   | 300     | 300   | 300  | 300      | 300        | 300   | 300     | 300   | 300  | 300      | 300        | 300   | 300     | 300   | 300  | 300      | 300        | 300   | 300     | 300   | 300  | 300      | 300        | 300   | 300     | 300   |
| 400    | 400      | 400        | 400   | 400     | 400   | 400  | 400      | 400        | 400   | 400     | 400   | 400  | 400      | 400        | 400   | 400     | 400   | 400  | 400      | 400        | 400   | 400     | 400   | 400  | 400      | 400        | 400   | 400     | 400   |
| 500    | 500      | 500        | 500   | 500     | 500   | 500  | 500      | 500        | 500   | 500     | 500   | 500  | 500      | 500        | 500   | 500     | 500   | 500  | 500      | 500        | 500   | 500     | 500   | 500  | 500      | 500        | 500   | 500     | 500   |
| 600    | 600      | 600        | 600   | 600     | 600   | 600  | 600      | 600        | 600   | 600     | 600   | 600  | 600      | 600        | 600   | 600     | 600   | 600  | 600      | 600        | 600   | 600     | 600   | 600  | 600      | 600        | 600   | 600     | 600   |
| 700    | 700      | 700        | 700   | 700     | 700   | 700  | 700      | 700        | 700   | 700     | 700   | 700  | 700      | 700        | 700   | 700     | 700   | 700  | 700      | 700        | 700   | 700     | 700   | 700  | 700      | 700        | 700   | 700     | 700   |
| 800    | 800      | 800        | 800   | 800     | 800   | 800  | 800      | 800        | 800   | 800     | 800   | 800  | 800      | 800        | 800   | 800     | 800   | 800  | 800      | 800        | 800   | 800     | 800   | 800  | 800      | 800        | 800   | 800     | 800   |
| 900    | 900      | 900        | 900   | 900     | 900   | 900  | 900      | 900        | 900   | 900     | 900   | 900  | 900      | 900        | 900   | 900     | 900   | 900  | 900      | 900        | 900   | 900     | 900   | 900  | 900      | 900        | 900   | 900     | 900   |
| 1000   | 1000     | 1000       | 1000  | 1000    | 1000  | 1000 | 1000     | 1000       | 1000  | 1000    | 1000  | 1000 | 1000     | 1000       | 1000  | 1000    | 1000  | 1000 | 1000     | 1000       | 1000  | 1000    | 1000  | 1000 | 1000     | 1000       | 1000  | 1000    | 1000  |

Statement of the Department of Agriculture and the Department of the Interior, showing the results of the investigation of the cotton and wool industries in California, 1911.

Report of the Department of the Interior, showing the results of the investigation of the cotton and wool industries in California, 1911.

LAND USE SURVEY  
SUMMARY OF DETAILED SCHEDULES  
FEED CONSUMED BY LIVESTOCK

Table 23  
(Continued)

| Fodder<br>Corn                      | Corn Fodder<br>Acres Pastures |        | Feed***<br>Purchased | Acres<br>Pasture<br>Land | % of T.D.N's<br>from<br>Pasture | Total<br>T.D.N's | Average<br>No. Animal<br>Units feed<br>Available for | Average<br>Number of<br>Animal Units |
|-------------------------------------|-------------------------------|--------|----------------------|--------------------------|---------------------------------|------------------|--|--------------------------------------|
|                                     | Grain                         | Fodder |                      |                          |                                 |                  |  |                                      |
| OPERATING UNIT 0-320 ACRES          |                               |        |                      |                          |                                 |                  |  |                                      |
| .29                                 | 1.64                          | 16.35  | X                    | 144.7                    |                                 |                  |  |                                      |
| 364                                 | 169                           | 2665   | 11                   | 14933                    | 47                              | 31835            | 8  | 9                                    |
| OPERATING UNIT 320-640 ACRES        |                               |        |                      |                          |                                 |                  |  |                                      |
| 3.28                                | 2                             | 12.    | X                    | 325                      |                                 |                  |  |                                      |
| 3854                                | 210                           | 2021   | 549                  | 33620                    | 57                              | 58710            | 14   | 21                                   |
| OPERATING UNIT 640-1280 ACRES       |                               |        |                      |                          |                                 |                  |  |                                      |
| 3.32                                | .93                           | 16.12  | X                    | 708.6                    |                                 |                  |  |                                      |
| 3914                                | 180                           | 2628   | 255                  | 73136                    | 70                              | 106038           | 27   | 32                                   |
| OPERATING UNIT 1280-2560 ACRES      |                               |        |                      |                          |                                 |                  |  |                                      |
| 9.1                                 | 8.3                           | 26.8   | X                    | 161.1                    |                                 |                  |  |                                      |
| 10655                               | 851                           | 4372   | 1216                 | 166255                   | 74                              | 225905           | 55   | 56                                   |
| OPERATING UNIT 2560 ACRES AND ABOVE |                               |        |                      |                          |                                 |                  |  |                                      |
| .5                                  | 6.2                           | 12.3   | X                    | 6072                     |                                 |                  |  |                                      |
| 549                                 | 719                           | 1997   | 15851                | 626682                   | 81                              | 776203           | 188  | 237                                  |

\*\*\*Feed purchased the average total digestible nutrients given in place of itemized purchases.

Total digestible nutrients in 1 bu. Rye equals 45  
Total digestible nutrients in 1 bu. Barley equals 38  
Total digestible nutrients in 1 bu. Corn equals 48  
Total digestible nutrients in 1 bu. Oats equals 21  
Total digestible nutrients in 1 bu. Wheat equals 49  
Total digestible nutrients in 1 bu. Spelts equals 36  
Total digestible nutrients in 1 acre pasture equals 103

Thistle Hay 1.31 T. equals 1 ton alfalfa hay  
Corn fodder .83 T equals 1 ton Alfalfa  
Small Grain Hay .91 T equals 1 ton alfalfa  
Prairie hay .864 T. equals 1 ton alfalfa  
T.D.N. in 1 ton alfalfa equals 1032  
T.D.N. in 1 ton cottonseed cake equals 1600







on a comparable basis, all feed were reduced to a similar unit. The unit in this case being T.D.N. or total digestable nutrient. The T.D.N.'s in the various feeds, have been taken from various publications concerned with analysis of feeds, chiefly from Henry and Morrison, "Feeds and Feeding". The quantities used are indicated on the foot notes. A very important source of feed is, of course, from pasture. While there is considerable variation in the quality of pasture, it was necessary in the present study, because of a lack of specific data, to consider the carrying capacity, similar to the average for the County as a whole. This has been determined by fairly reliable information as being 40 acres per cattle unit on an annual basis or  $3 \frac{1}{3}$  acres per month. Reference has also been made of the fact that about 4125 pounds of T.D.N. are required per cattle unit for normal maintenance and gains. Thus on the above basis, one acre of pasture will provide approximately 103 pounds of total digestable nutrients.

While the above basis permits fairly accurate determination of the relationship between livestock and feed, it is not presumed that the data is absolutely accurate. It was frequently necessary to obtain estimates from the farmer and rancher as to the quantities of the crops produced. Hay and fodder, well cared for, will provide more nourishment per unit of weight than when partially deteriorated in the field. However, there is little question but that sufficiently accurate comparisons can be made by this method, to indicate important divergence in a feed-livestock balance and whether or not the land use practice is well adapted to the location and soil conditions on the farm.

As would be expected, the proportion of the total feed from pasture increases as the size of the operating unit becomes larger. The ratio being about half for farms of 640 acres or less, about three-fourths for



farms or ranches using between one and four sections, and about four-fifths for the larger ranches. There is very little variation in the proportion of the total feed from hay averaging about 15 percent, except for the group of farms with the smallest acreage which had 20 percent of the total feed from the various classes of hay. The proportion of feed consumed in the form of grain and fodder is almost the direct opposite to that from pasture, the higher percentage being used by the farms with the smaller acreages. The ratio and the variation being  $1/3$  of the total for the group of small farms,  $1/4$ ,  $1/6$ ,  $1/9$  and  $1/100$  for the other groups in the order of size of the operating unit.

Perhaps the most important suggestion pointed out by the data shown in Table 23 under consideration, is the relationship between the number of animal units on the farm and the number of animal units for which feed was available. There was evidently a well adjusted livestock-feed balance on the average, on the farms included in the groups one and four, or those having less than  $1/2$  section and those having 2 to 4 sections of land in the operating unit. The data indicates that the second group of farms using 320 to 640 acres of land had a third more livestock than available feed. Farms and ranches of 1 to 2 sections a sixth, and the large ranches of more than 4 sections, a fifth more livestock than available feed would carry. The data in Table 23 indicates that the 190 farms and ranches as a whole had 13,813 head of animal units on hand but had feed for only 11,460. On a basis of these averages, they were overstocked in 1935 to the extent of approximately 17 percent. Precipitation in 1935 was approximately 90 percent of the mean for the period 1924-35.

In order to establish desirable land use practice these figures not only emphasize the need to reduce the numbers of livestock but also the





need to secure more adequate crop yields. A basis for effecting a reduction in cattle and sheep without disrupting the organizational set-up has been previously pointed out. An increase in crop yields can be attained by eliminating the obviously sub-marginal crop land which may mean a reduction in the number of small operating units and by putting into practice a farming system that will minimize the influence of soil blowing but still provide for the greatest possible amount of water conservation.





## PRESENT LAND USE AND ADJUSTMENT RECOMMENDATIONS

### AREA BASIS

The previous material has been presented in order to secure a view of present land use practice as a basis for determining, at least in part, the reasons for and the most likely and applicable methods of alleviating distress in the dry farming area. While the information in this report pertains specifically to Campbell County, it is thought that in general the suggestions will also apply to the whole of north-eastern Wyoming where there is competition for the use of the land in the production of dry farm crops and range livestock.

The basis for the suggestions and recommendations are the result of analysis of the land use and management data as indicated in previous portions of this report and from a study of maps and material in graphic form developed largely in the L.U.P. office which consists of:

|                                      |                           |
|--------------------------------------|---------------------------|
| Land Ownership                       | A.A.A. Carrying Capacity  |
| Land Classification (U.S.D.I.)       | A.A.A. Production Indexes |
| Soil ratings - (Production capacity) | R.A. Clients              |
| **Type of Farming - *(L.U.S.)        | Soil Erosion - (S.C.S.)   |
| Gross income *(L.U.S.)               | ****Land Use Survey       |
| ***Geology and Water Utilization     | Adjustment Districts      |
| Precipitation and yields             |                           |

\*L.U.S. - Land Use Survey, Campbell County 1935 by State Land Planning Specialist.

\*\*Locates operating unit in place. Indicates number of cattle, sheep, swine, turkeys, chickens and bushels of wheat produced.

\*\*\*Shows geology, location of wells, springs and pertinent available data relative to water development possibilities.

\*\*\*\*Locates headquarters and operating units, land ownership and tenure, land under cultivation in hay and in native pasture.



Maps and charts showing land ownership and land classification, certain information in regard to adaptability of various types of farming, precipitation and crop yields have to some extent already been discussed. As specific indication of problems involved in land use adjustment, graphic pictures showing the operating units and present use, the type of soil on which the farms are located, the type of farm based upon the important agricultural enterprises and the <sup>10/</sup>gross income based upon average returns, have been or are being developed. The following charts portray such data for an area of six townships in the central portion of the County. It is thought that the discussion will apply in considerable detail to the County as a whole and in general to northeastern Wyoming.

Maps of the sample area, immediately south of the town of Gillette, showing the location and size of the operating units and variation of the estimated gross income is represented in Figures 8 to 11. Three of the operating units, numbers -9, -10, and 24 lie largely in other townships and for this reason are not considered in the following discussion. A number of smaller units are also partly outside the boundary lines but since the headquarters are located within the township boundaries, they are included in the present brief analysis. There is approximately 158,500 acres within the boundaries of all the farms and ranches whose headquarters are shown on the chart. On a basis of a 6 section minimum self-sustaining operating unit as shown in the supplement, this area would support approximately 45 ranches organized on the basis of strictly livestock production. Under the present situation, however, there are 112 units in the area. Fifteen of these have an average of 295 acres, 21 have 482 acres, 40 have 856 acres, 25 have 1705 <sup>10/</sup>As discussed on page 46.





Res



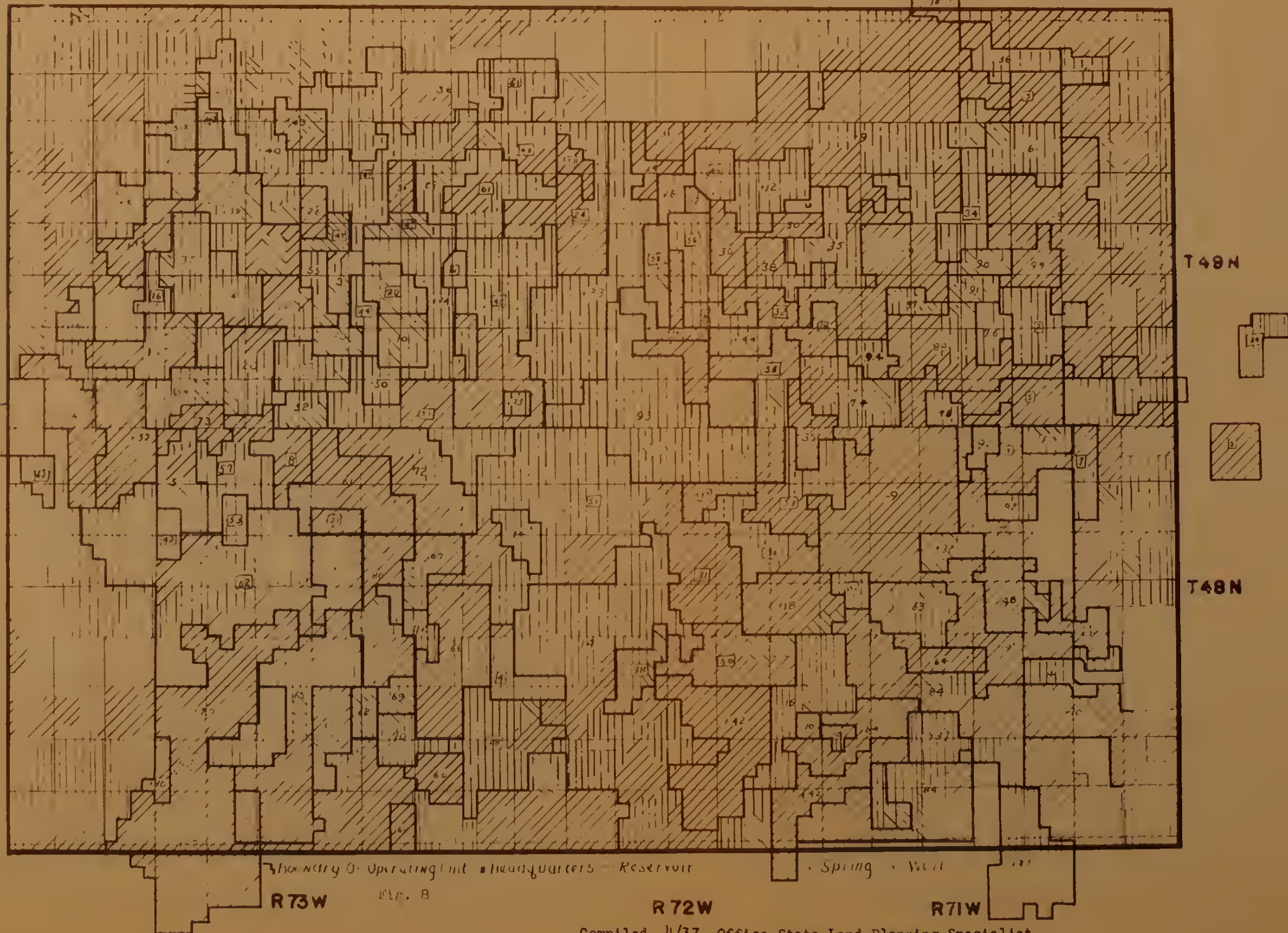
16





# LAND USE AND OPERATING UNITS IN SAMPLE PLOT - 6 T'NS'PS

Resident Owned Land
  Land under Lease
  Public Domain
  Land under Cultivation
  Abandoned Crop Land



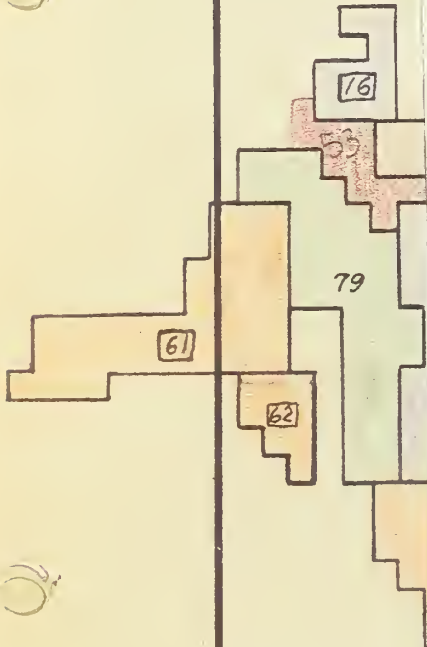


acres and 11 have 611 acres. In this particular area, 42 percent of the land is controlled by the 11 units that are included in the group having the largest acreage. Twenty-seven percent is controlled by the next group of 25 operators which represent 22 percent of the total. These two groups of operators, which make up 32 percent of those under consideration have on the average sufficient land to meet the minimum requirements of a self-sustaining operating unit organized largely on a basis of livestock production. Seventy-six or 68 percent are too small to meet the requirements. Since all these farms and ranches are within about 15 miles of a shipping point, it is not necessarily essential that they all be organized strictly on a basis of livestock production. However, crop yields are fairly closely associated with soil type, and satisfactory crop yields are essential for the small farm, that must of necessity secure a substantial portion of the farm income, from the crop production phase of the farm organization program. The difficulties associated with adjustments to be effected by a reorganization of the cropping program are emphasized by the information shown in Figure 10. Frequently the larger operating units which are little concerned with crop production are located on the better soil types. A large portion of the area in township 48-71, for example, is of the best soil type and very few of the units are too small, while in township 49-73 there are very few units that are sufficiently large to be organized on a basis of livestock production, but the soil is not adequate for sustained satisfactory crop production. An adjustment in the farm organization that will permit desirable land use under the general economic and soil conditions which prevail and one that will reduce the necessity for outside financial assistance, will in this area, be concerned with,

(1) an increase in diversified farming that will emphasize the importance







Cattle Unit  
 Sheep Unit \$  
 Chicken Hen  
 Turkey Hen \$  
 Brood Sow \$  
 Wheat, per  
 92¢





- 3200 and Above
- 21600 - 3200
- 800 - 1600
- 400 - 800
- 200 - 400
- 0 - 200

# OPERATING UNITS IN SAMPLE PLOT - 6 TNSPS

Cattle Unit .18  
 Sheep Unit 4.80  
 Chicken Hen 2.25  
 Turkey Hen .20  
 Brood Sow .75  
 Wheat, per bu. 92¢

R73W

R72W

R71W

T49N

T48N



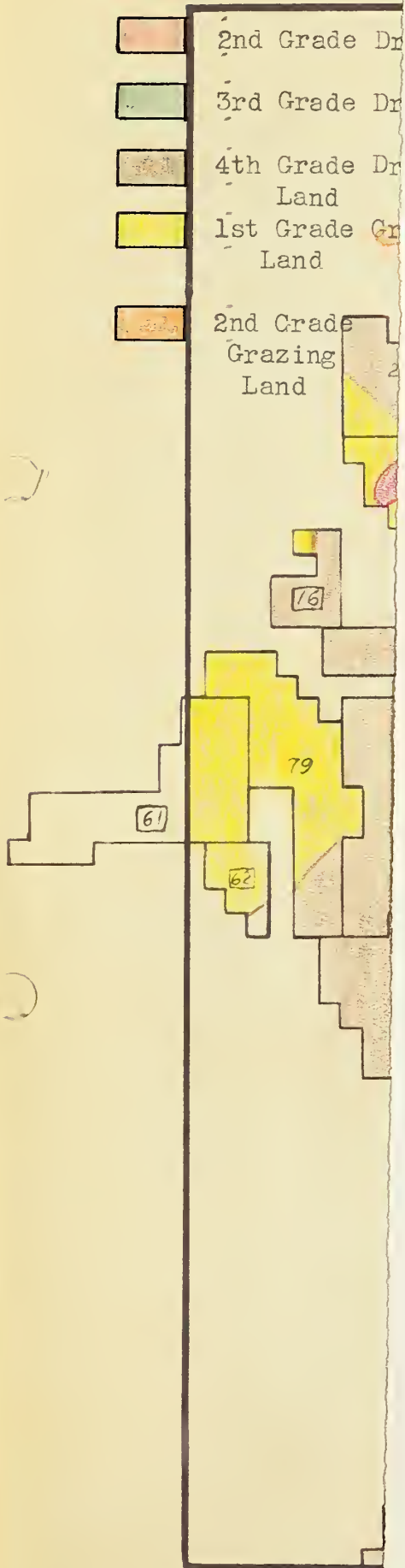
of soil conserving crops, dual purpose dairy cows, poultry, swine and/or farm flock livestock enterprises; (2) the expansion of opportunity for work off the farm; and (3) the enlargement of a number of the operating units by renting additional land or by consolidation or purchase of some of the smaller farms.

Reference to Figure 11 suggests, in general, considerable diversity in the farm program. A close scrutiny of the data, however, indicates several small units which do not have a farm set-up that is well suited to the soil and general economic conditions. In township 49-73 there are 11 units that have an average of only 535 acres of land, 13 cattle units, 2 cows and 35 chickens. They were also producing 148 bushels of wheat, which on a basis of average estimated gross return from those enterprises would provide an income of only about \$530. In addition to these there are 9 large outfits that have an average gross return of approximately \$3200, and 7 smaller units that would have a return of about \$1175. It is perhaps this latter group of farms that would receive the largest potential benefit from additional land. In this particular case, however, there would only be four of these units that would greatly benefit by enlargement. Three of them have, at present, almost three sections of land under control. A low income over a period of years, as was the case in 1935, would be largely due to a lack of managerial ability or insufficient funds or credit that would permit obtaining sufficient numbers of livestock to make optimum use of the range.

Under the present situation, the number of operating units in the area, however, materially limit the organization of strictly livestock enterprises. For this reason an important portion of the farm income will of necessity be from crops. Such a situation will likely be conducive to the production of a relatively large acreage of wheat. Except

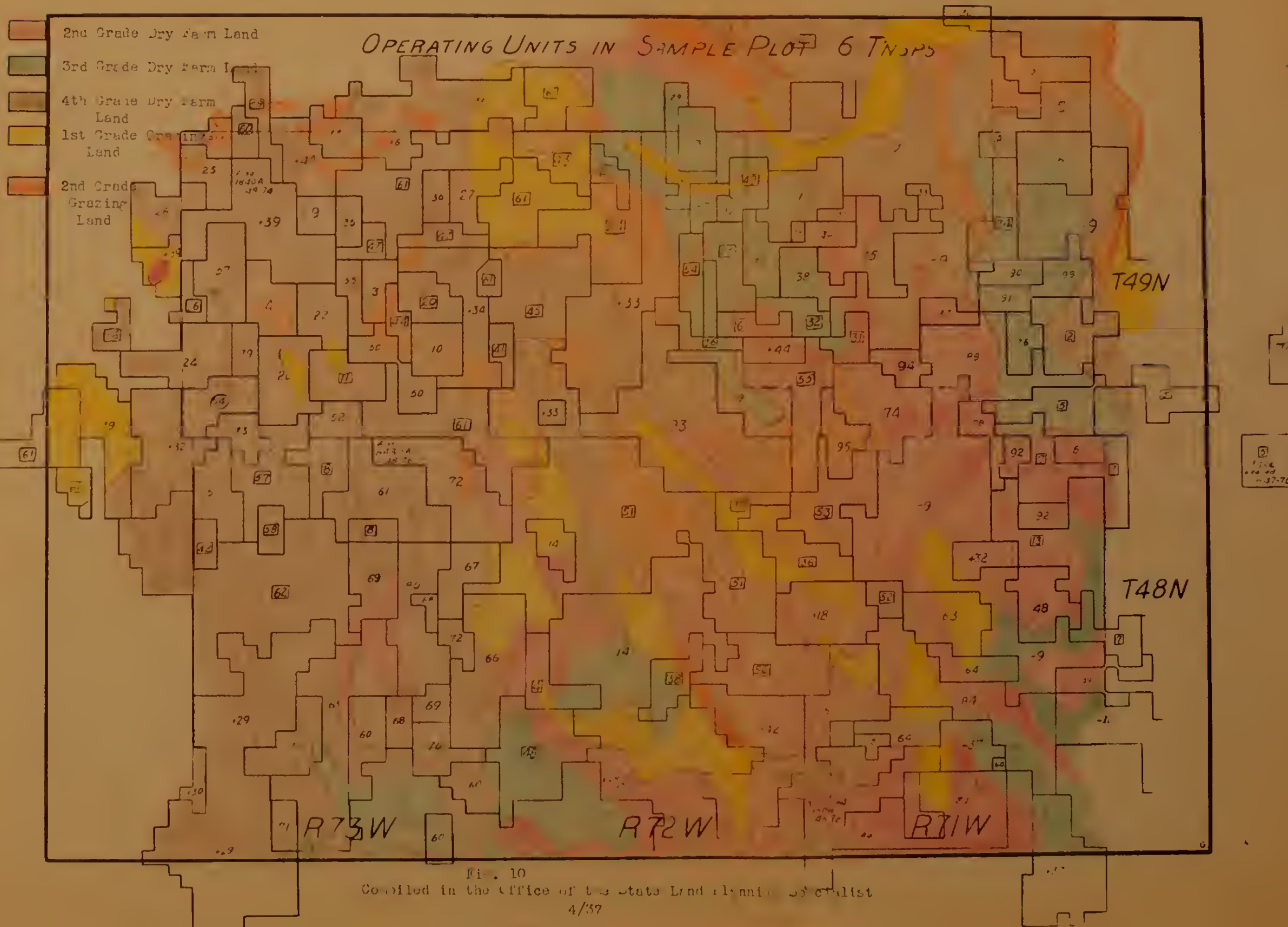




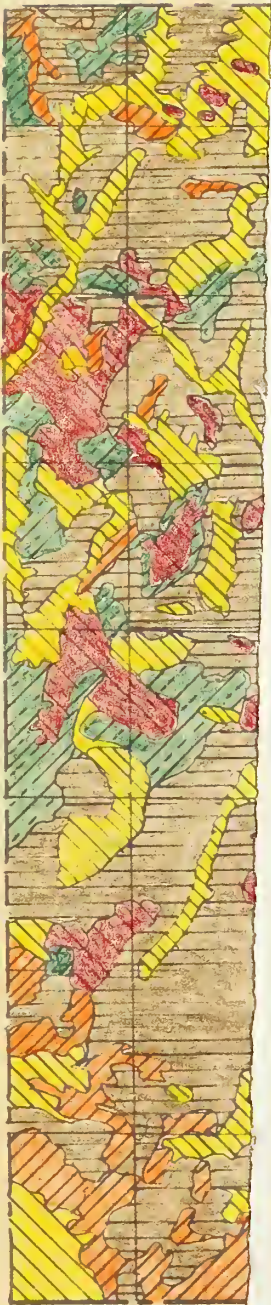












Compile  
Land Pl





# CAMPBELL

# COUNTY

SOIL PRODUCTION CAPACITY AS RATED BY DEPT OF SOILS  
U. OF WYO.

DRY FARM LAND GRADED AS  
TO FIELD PER ACRE

15-18 BUSHELS  
1 FAILURE IN 5 YRS

12-15 BUSHELS  
1 FAILURE IN 4 YRS

8-12 BUSHELS  
1 FAILURE IN 3 YRS

GRAZING LAND GRADED AS  
TO CARRYING CAPACITY

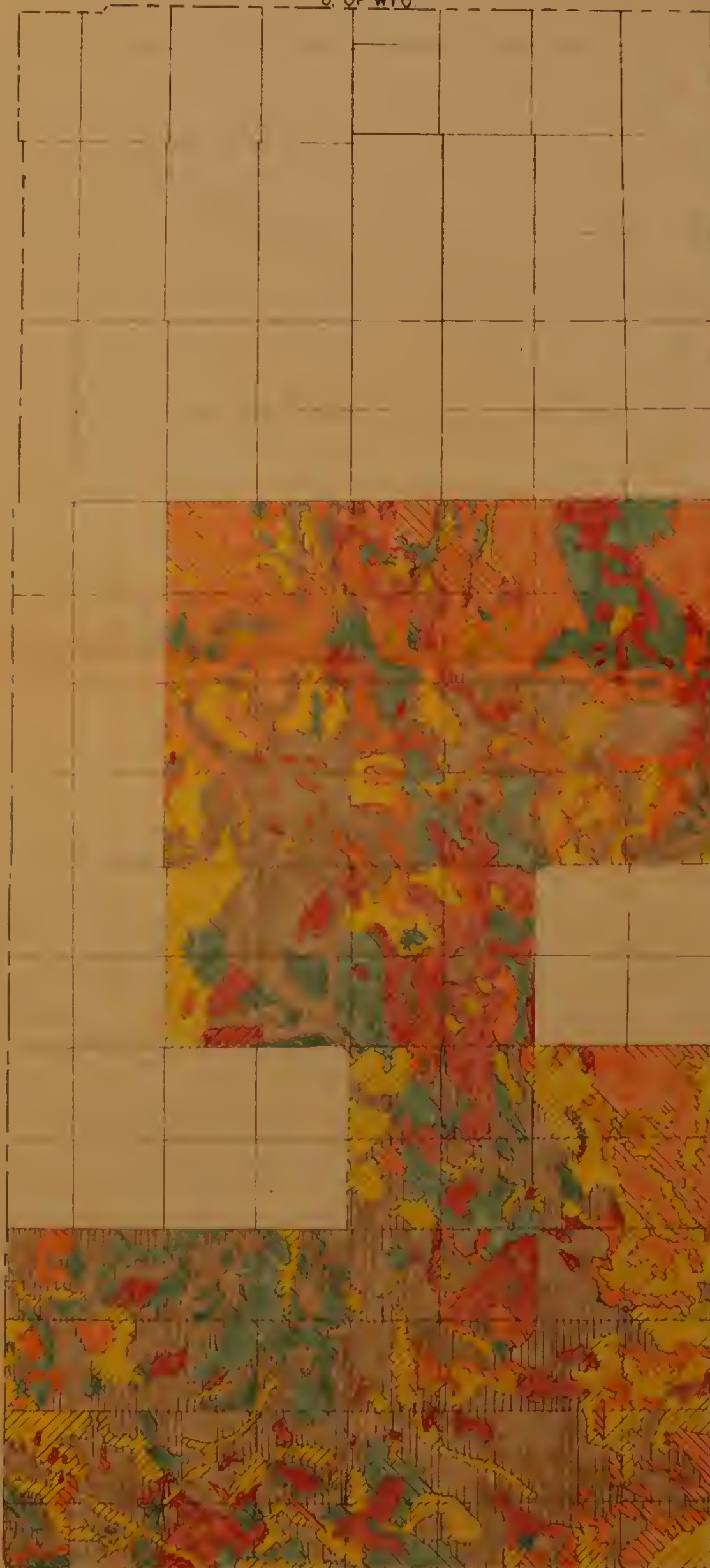
NO 1 GRAZING LAND  
35-40 ACRES PER  
CATTLE UNIT

NO 2 GRAZING LAND  
40-45 ACRE PER  
CATTLE UNIT

Area Covered to date  
by soil survey

Pl. 10 (a)

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Land Planning Specialist

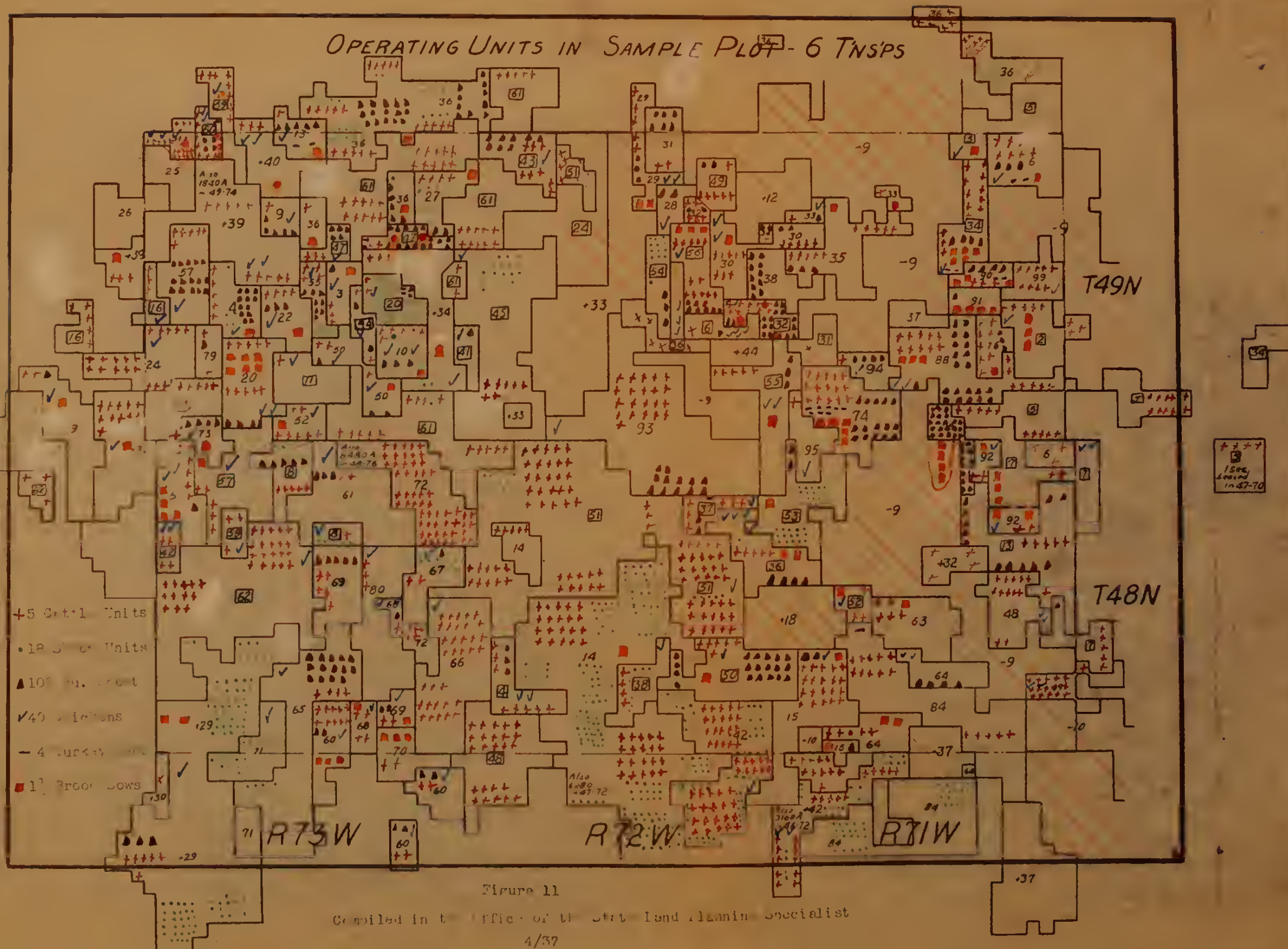
















where the only solution to the problem is the enlargement of the operating unit, suggestions for the betterment of land use will probably be concerned with the development of the small livestock enterprises and improving the farm practice. In this region, except under the very best of soil conditions, winter wheat should be limited to an absolute minimum and from the long-time production standpoint should, as a rule, be planted on summer fallow land. The tendency which the soil has to blow will or should influence the general procedure. Summer fallow may not always be adapted to a sound land use program where cash crops are to be produced. A continued practice of "stubble back" or surface plowing usually results in uneconomical yields unless sweet clover or alfalfa can be established and the cropping program be subjected to general rotation practice. As a rule spring wheat and other spring grains should be planted on land that during the previous year produced corn or another cultivated crop and this land in turn be fallowed the following year. Such an organization permits fairly satisfactory moisture conservation, and yet provides, ordinarily, for a sufficient amount of cash crops. Where there is any tendency for the soil to blow, the farm should, of course, be converted to a strip-cropping basis, and where the topography is rolling, it may be necessary to organize the strips on the contour. A concerted effort should be made to reduce erosion to the lowest possible point. Contour furrows should be used to distribute the spring run-off to the range and pasture lands. Especially is it desirable to divert, by such a method, any water that tends to collect in the low places, and become the cause for a gully. Effective conservation and the use of that available moisture is a fundamental concept; since, by its accomplishment, erosion is more effectively controlled, crop yields are made larger, and the general success of the farm program is much more assured.

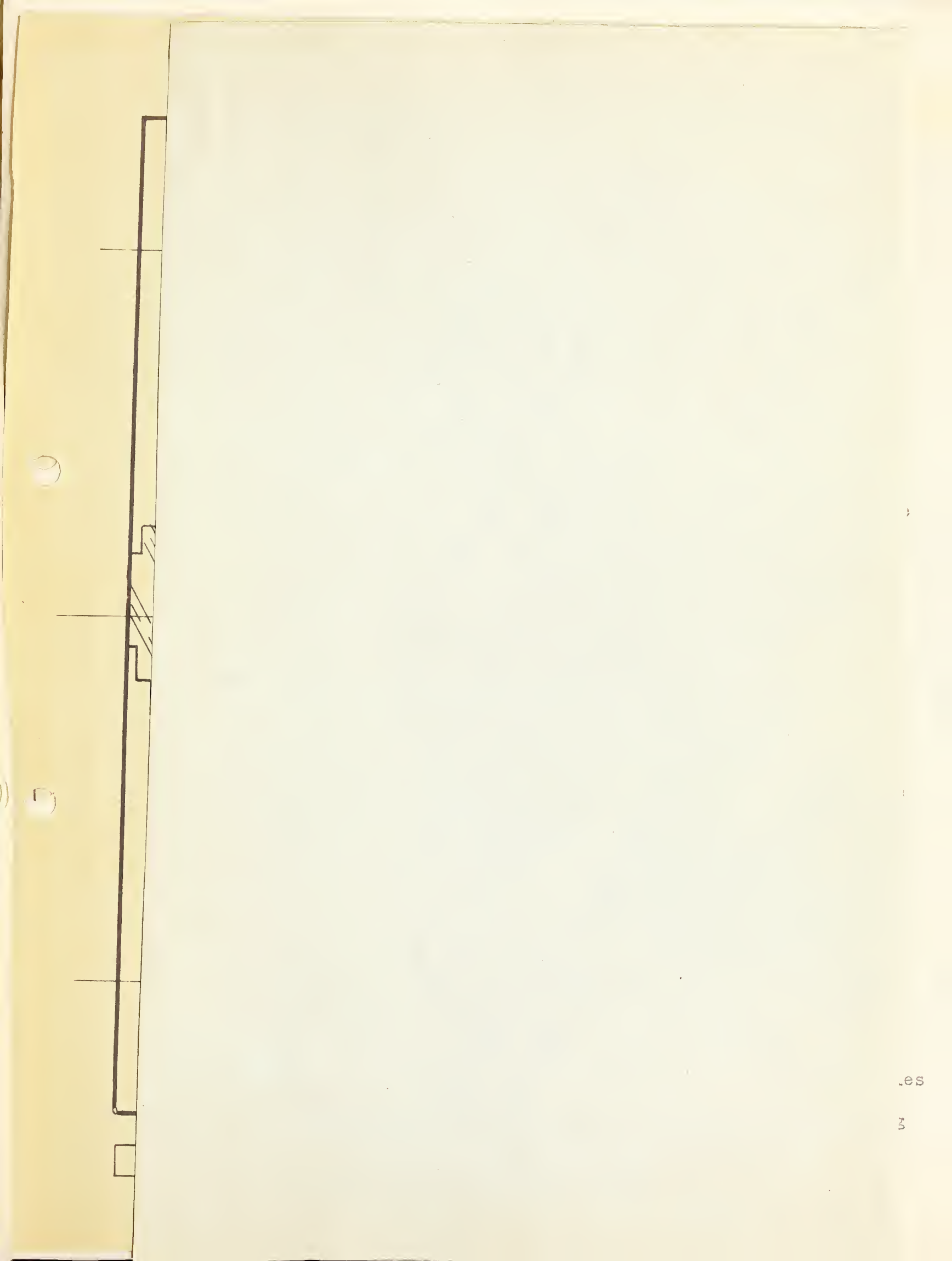




Adjustment Districts  
Probable Best Land Use

Adjustment districts in the area under consideration, based on best land use as indicated by the information included in the discussion so far is shown in Figure 12 and 13. The land use thus represented shows considerable opposition to the present use. As previously suggested, the reason for such divergence is due to the fact that small operating units are very frequently located on the poorer classes of soil. This information suggests the reason why the livestock enterprise must be developed to its maximum. As repeatedly suggested, this livestock enterprise will, on the small units, very likely need to be one in which dairy products, poultry and poultry products, and hogs are important. The limited acreage of available pasture makes possible a maximum use of labor, a factor associated with success, only as the result of such enterprises. Where the limitation of acreage makes crop production necessary, cash crops, other than wheat, should receive consideration. Since this area is susceptible to its production, alfalfa seed should be included in the cropping program. In fact a few farmers produce, at the present time, certified alfalfa seed. The certification being carried on as an activity of the Agronomy Department of the University. When it is possible to secure a stand, alfalfa makes a very satisfactory crop since it adds fertility to the soil, retards erosion, provides excellent forage even when threshed for seed, and is generally one of the best soil conserving crops. During years of normal precipitation the yields of seed are, as a rule, satisfactory. The average value in the State for alfalfa seed has been around \$15 per bushel but under certification this price can be materially increased. At the present time certified alfalfa seed from the Campbell County areas will net the













# ADJUSTMENT DISTRICT BASED ON BEST LAND USE



|  |   |   |  |
|--|---|---|--|
|  Range Pasture |  Range Livestock and Supplemental Forage Crops |  Small Farm Livestock Enterprises and Forage Crops |  Small Farm Livestock Enterprises Forage Crops and Cash Grain |
|--|---|---|--|

OFFICE OF STATE LAND PLANNING SPECIALIST MAY 5 '37





producer approximately 30¢ per pound. On a basis of 20 to 30 cents per pound, alfalfa seed can become a very important cash crop and may provide an important alternative means of increasing the farm income of the small units.

In southeastern Wyoming, an area similar in many respects to Campbell County, certified seed potatoes are an important cash crop. In fact such potatoes have been the source of a large part of the cash income on many of the smaller farms. Since in Campbell County a rainfall of 10 inches during the growing season approximates that of the area to the south, and since the soil types are in many places similar, potatoes as a commercial crop should also receive consideration in the organizational plan of these smaller farms if and when conditions prevail which do not permit enlargement. It should be remembered, however, that since potatoes are a cultivated crop, their inclusion in the farm plans may increase the tendency to wind erosion. Since many parts of Campbell County have not been subjected to such erosion, consideration of such a crop may have merit. However, a distinct effort should be made to organize a system of cropping that will tend to reduce to a minimum all soil depletion and erosion. As far as possible additional cultivated crops should be placed on land which, in the past, has been plowed. Before any new soil is 'broken-out', all other possibilities should be thoroughly scrutinized. There is probably no place in this area at the present time where, from the standpoint of best land use, it would be desirable to break out new land.

The above discussion is intended to indicate alternative possibilities of improving land use practices in areas of poor soil and small operating units. The suggestions made take into account the people, the problems as they are, and perhaps indicate certain things that need to have con-



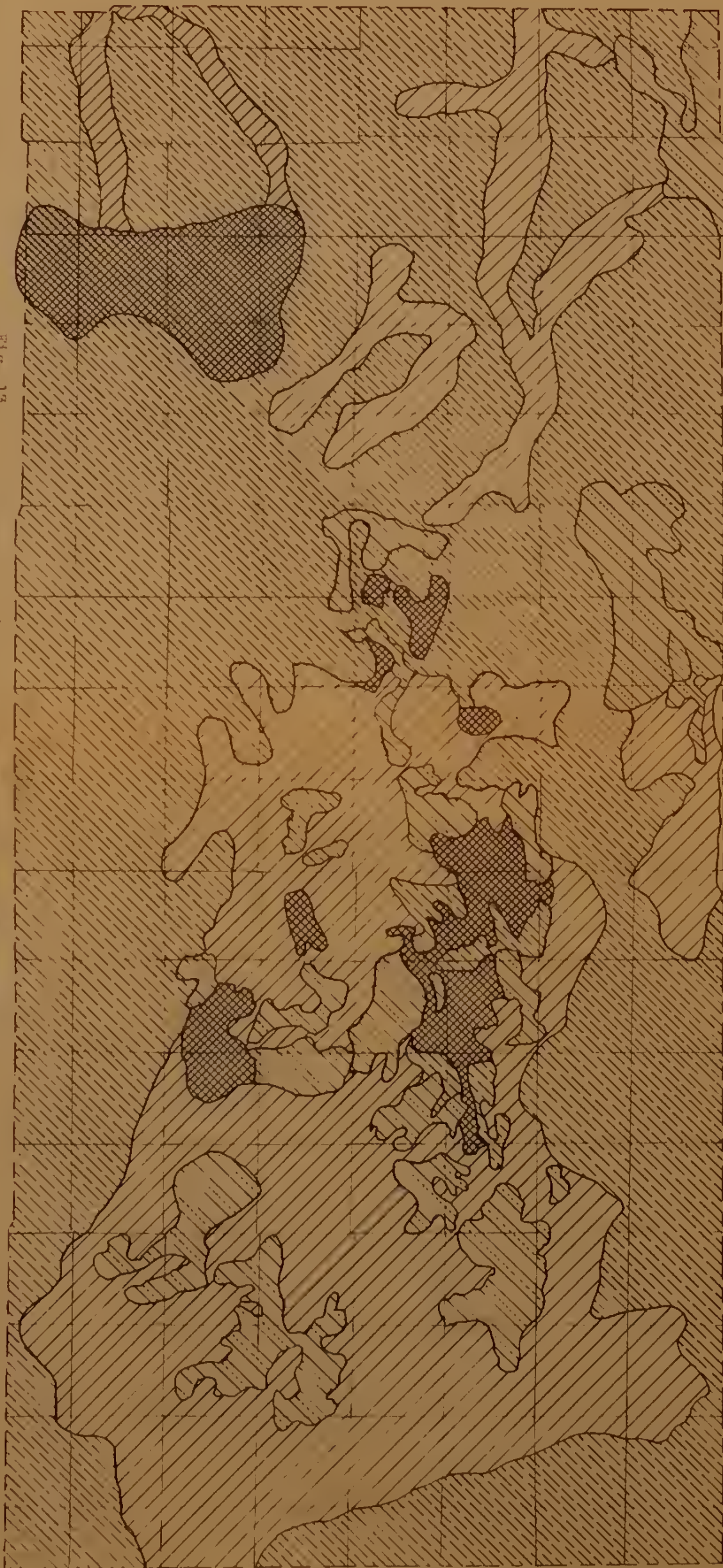
LAND USE ADJUSTMENT PROPOSAL







# LAND USE ADJUSTMENT DISTRICTS CAMPBELL COUNTY, WYO.

Scale - 1 in. = 8 ml.



 Range  
Pasture.

 Range Live-  
stock, Supplemen-  
tary Forage Crops.

 Small Farm,  
Livestock, Forage  
Crops.


 Small Live-  
stock Unit, Forage  
Crops, Cash Grain.

Fig. 13

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sideration, in the establishment of any permanent land use adjustment. In many cases the land should, without question, go back to grass. Effecting such adjustment immediately, however, presents a situation that is likely not a present possibility. For this reason certain suggestions have been made in regard to the inclusion of cultivated crops in the farm program even though the soil is not always well suited to crop production. Establishing desirable land use and yet maintain a fair standard of living, presents a very serious problem as far as the small operating units are concerned. In view of the limited possibilities to expand the acreage, the chief alternatives are probably along the lines suggested, if a large number of the operators are to remain in the area. If the approach to the solution of the present problem is to be from the view point of land as an exhaustable natural resource, and the type of farm so organized as to prevent destructive practices, the information shown in the following charts point out some of the factors that should receive attention. It is felt that the information discussed is fairly typical of a large part of the dry farming and cultivated areas in the State. The land adjustment problem, in the areas where the farms are too small, is one of first magnitude, and one that should receive the close attention of all agencies interested in land use planning.



### Adjustment Areas

Figure 13 shows the boundaries of the various land use areas in Campbell County as determined by information developed in the present study. The information shown is to be taken as being suggestive of probable best general land use. It is not arbitrary or final. The boundaries of the various areas indicate, as far as it is possible to tell from present information, where the type of land use is likely in a transition zone. Very seldom is there, under actual conditions, a definite line of demarcation between various types of farming. The change is necessarily gradual and width of this zone will depend upon topography, soils, climate, the general economic situation, as well as conditions, already discussed, that contribute to desirable or undesirable land use. The areas are delimited, as far as can be determined, from the standpoint of probable best land use. Future general conditions as well as more detailed information on soils and farm practice may indicate the need for a certain revision.

Information in regard to soils, production capacity of various types, and yield history of various crops is not available in sufficient detail at the present time. Where there is at present or where the future will likely indicate competition for the use of the land in the production of cash grain or forage for livestock, sound land use recommendations that will bear scrutiny over a period of years, cannot be made with certainty until the soil survey has been completed.

#### Area A.

For most conditions, Area A locates the only place in Campbell County where the production of cash grain should be considered in the farm organization program. The boundaries of this area are determined





primarily by soil and distance to the shipping points.

The topography of this area is, for the most part, rolling to fairly level. Approximately 6 percent of the County or 169,500 acres are included within the boundaries of Area A. As far as can be determined this area contains a larger portion of better soils than other areas. Of this amount approximately 10 percent or 16,950 acres is classified by the U.S.D.I. as second-grade dry-farm land, 36 percent as third-grade and 91,500 acres or 54 percent as grazing land. According to data secured in the land use survey, there were approximately 104 operating units located in this area.

From the standpoint of best land use, cash grain production in Campbell County should essentially be limited to Area A. Soil types and distances to shipping points materially limit the production of such crops in other parts of the County if successful and satisfactory farm organizations are to be established. However, diversification of the farm program should receive thorough consideration. The smaller units will, of necessity, need to develop to a maximum the farm livestock enterprises of dual purpose dairy cows, poultry or turkeys, swine and/or desirable combinations. The production of alfalfa seed and other soil conserving crops should be encouraged.

This particular area is probably capable of supporting more people on a fairly satisfactory basis, than the number indicated. However, the introduction of more operators would necessitate considerable reorganization in the present ownership pattern. Under recommended farm practice and efficient and intelligent use, a section and a half of land, in this area, is, in most cases, sufficient to support a family. Such an acreage, however, will require that an important part of the farm income be from the sale of crops.





Area B.

This area contains approximately 245,000 acres. Fifty-eight percent or 142,400 acres is classified as grazing land, 39 percent or 95,550 acres as third-grade dry-farm land and 3 percent or 7350 as second-grade dry-farm land. There were approximately 168 operating units within the boundaries.

Relatively little land in this area is well suited to the production of commercial grain. The farm program of the small operating units should, as a rule, be organized around small livestock enterprises and the production of forage crops. One of the important problems in this area is associated with the frequency of the small operating unit. In order to reduce the necessity of attempting to produce cash grain under poor soil conditions, the livestock enterprises will have to be expanded, a change that calls for more pasture. The establishment of best land use for the average conditions in this area will therefore frequently call for a larger acreage of land in the operating unit, a greater proportion of soil conserving crops, emphasis of the small livestock enterprises and farm practices such as discussed in previous portions of this report, that will reduce erosion and maintain the soil fertility.

Area C.

This area contains approximately 928,000 acres. According to the U.S.D.I. 4 percent is classified as second-grade dry-farm land, 41 percent as third-grade dry-farm land and 55 percent as grazing land. In 1935 there were approximately 240 operating units located in this area. Excepting the operators of small units that farm poor land, the chief land use problem in this area is associated with the range livestock business. The abandoned crop land should be permitted to revert



to sod forming grasses, depleted range lands should be permitted to recover by conservative rates of stocking, deferred and/or rotation grazing practices or reseeded. Very little if any commercial grain production should be attempted. Sufficient supplemental forage crops should be produced to provide a desirable balance in feed resources and to permit the most economic use of the range lands. In the development of supplemental feed, thorough consideration should be given to the production of soil conserving crops.

#### Area D.

This area contains approximately 1,705,000 acres. The roughest portions of the County are included within the boundaries. The area contains approximately 260 units that are essentially best adapted to the production of livestock under range conditions. There is practically no place for commercial grain crop production. The production of forage crops should, for the most part, be limited to the better soils and to areas in which the availability of supplementary feed will permit a better distribution of livestock on the range. Land use planning will be concerned largely with the determination of rates of stocking, the influence of tenure diversification, the development of water facilities, the revegetation of abandoned crop land and other areas of depleted forage resources, and all measures that effectively and economically control erosion.





Supplement I

DRY LAND FARM -- Subsistence Basis

Computations based on an allowance of \$400 for family living after 4 percent interest has been allowed on investment.

$3\frac{1}{2}$  Section Farm -- 2240 acres

|                             |                    |       |         |           |
|-----------------------------|--------------------|-------|---------|-----------|
| Land Investment             |                    |       |         | \$4983.   |
| Grazing area                | 1970 acres at 1.74 |       | \$3448. |           |
| Farm Crop land              | 170 " " 6.00       |       | 1020.   |           |
| Hay land                    | 80 " " 6.00        |       | 480.    |           |
| Farmstead & other           | 20 " " 1.75        |       | 35.     |           |
| Buildings & Improvements    |                    |       |         | \$3000.   |
| Dwelling                    | \$1200.            |       |         |           |
| Barns & Sheds               | 500.               |       |         |           |
| Granary and other buildings | 400.               |       |         |           |
| Water Development           | 400.               |       |         |           |
| Fences                      | 500.               |       |         |           |
| Machinery and Equipment     |                    |       |         | \$1000.   |
| Farm Machinery              | \$800.             |       |         |           |
| Other Equipment             | 200.               |       |         |           |
| Automobile                  |                    |       |         | 250.      |
| Livestock                   |                    |       |         | 4463.     |
| 35 cows                     | @45                | 1575. |         |           |
| 5 Heifers 2's               | @38.               | 228.  |         |           |
| 7 Heifers 1's               | @25.               | 175   |         |           |
| 15 Steers 1's               | @30.               | 450.  |         |           |
| 15 Steers 2's               | @43.               | 645.  |         |           |
| 2 Bulls                     | @100               | 200.  |         |           |
| 5 Milk Cows                 | @60                | 300.  |         |           |
| 1 Dairy Heifer              | @35                | 35.   |         |           |
| 8 Work Horses               | @85                | 680.  |         |           |
| 1 Saddle Horse              | @60                | 60.   |         |           |
| 2 Sows                      | @20                | 40.   |         |           |
| 100 Chickens                | @75¢               | 75.   |         |           |
| TOTAL INVESTMENT            |                    |       |         | \$13,696. |

# 2. Description of the Project

| Item              | Quantity | Unit | Price | Total   |
|-------------------|----------|------|-------|---------|
| 1. Labor          | 1000     | hr   | 1.50  | 1500.00 |
| 2. Material       | 500      | lb   | 2.00  | 1000.00 |
| 3. Equipment      | 100      | hr   | 3.00  | 300.00  |
| 4. Transportation | 50       | mi   | 1.00  | 50.00   |

| Item              | Quantity | Unit | Price | Total  |
|-------------------|----------|------|-------|--------|
| 5. Labor          | 200      | hr   | 1.50  | 300.00 |
| 6. Material       | 100      | lb   | 2.00  | 200.00 |
| 7. Equipment      | 20       | hr   | 3.00  | 60.00  |
| 8. Transportation | 10       | mi   | 1.00  | 10.00  |

| Item               | Quantity | Unit | Price | Total  |
|--------------------|----------|------|-------|--------|
| 9. Labor           | 100      | hr   | 1.50  | 150.00 |
| 10. Material       | 50       | lb   | 2.00  | 100.00 |
| 11. Equipment      | 10       | hr   | 3.00  | 30.00  |
| 12. Transportation | 5        | mi   | 1.00  | 5.00   |

| Item               | Quantity | Unit | Price | Total |
|--------------------|----------|------|-------|-------|
| 13. Labor          | 50       | hr   | 1.50  | 75.00 |
| 14. Material       | 25       | lb   | 2.00  | 50.00 |
| 15. Equipment      | 5        | hr   | 3.00  | 15.00 |
| 16. Transportation | 2        | mi   | 1.00  | 2.00  |

| Item               | Quantity | Unit | Price | Total |
|--------------------|----------|------|-------|-------|
| 17. Labor          | 25       | hr   | 1.50  | 37.50 |
| 18. Material       | 12       | lb   | 2.00  | 24.00 |
| 19. Equipment      | 2        | hr   | 3.00  | 6.00  |
| 20. Transportation | 1        | mi   | 1.00  | 1.00  |
| 21. Labor          | 10       | hr   | 1.50  | 15.00 |
| 22. Material       | 5        | lb   | 2.00  | 10.00 |
| 23. Equipment      | 1        | hr   | 3.00  | 3.00  |
| 24. Transportation | 0.5      | mi   | 1.00  | 0.50  |
| 25. Labor          | 5        | hr   | 1.50  | 7.50  |
| 26. Material       | 2        | lb   | 2.00  | 4.00  |
| 27. Equipment      | 0.5      | hr   | 3.00  | 1.50  |
| 28. Transportation | 0.2      | mi   | 1.00  | 0.20  |



Farm Receipts:

\$2113.

|                               |       |        |
|-------------------------------|-------|--------|
| 14 Steers 2's (850# @ 6.50)   | 55.25 | \$774. |
| 8 Heifer Calves (360# @ 6.75) | 24.30 | 195.   |
| 5 Cows (950# @ 4.50)          | 42.75 | 214.   |
| 1/2 cull value of 1 bull      |       | 25.    |
| 4 hogs (225# @ 7.75)          | 16.31 | 65.    |
| Dairy Products & Calves       |       | 240.   |
| Poultry & Poultry Products    |       | 80.    |
| Wheat (800 bu. @ 65¢)         |       | 520.   |

Farm Expenses

1120.

|                                     |       |      |
|-------------------------------------|-------|------|
| Labor, 180 days                     |       | 275. |
| Salt                                |       | 10.  |
| Threshing                           |       | 80.  |
| Livestock Purchases -- 1 young bull |       | 75.  |
| Buildings & Improvements            |       | 140. |
| Depreciation                        | \$90. |      |
| Repairs                             | 50.   |      |
| Machinery & Equipment               |       | 150. |
| Depreciation                        | 100.  |      |
| Repairs                             | 50.   |      |
| Automobile                          |       | 160. |
| Depreciation                        | 100.  |      |
| Repairs, gas & oil                  | \$50. |      |
| Miscellaneous                       |       | 50.  |
| Taxes                               |       | 200. |

FARM INCOME

953.

Interest at 4% on \$13,696.

548.

\$425.

CROP ACREAGE AND PRODUCTION

|                           |                   |          |
|---------------------------|-------------------|----------|
| Winter wheat              | 40 acres @ 17 bu. | 680 bu.  |
| Spring Wheat              | 20 acres @ 14 bu. | 280 bu.  |
| Seed Requirements         | 60 bu.            |          |
| Poultry feed              | 90 bu.            |          |
| Hog feed                  | 10 bu.            |          |
| For sale                  | 800 bu.           |          |
| Corn 40 acres             |                   |          |
| 10 acres snapped @ 18 bu. |                   | 180 bu.  |
| 30 acres pastured         |                   |          |
| Oats 20 acres @ 20 bu.    |                   | 400 bu.  |
| Barley 10 acres @ 16 bu.  |                   | 160 bu.  |
| Hay 80 acres @ 3/4 ton    |                   | 60 tons. |

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Feeding program and requirements

|            |    |              |
|------------|----|--------------|
| Beef herd  | 66 | animal units |
| Dairy herd | 6  | " "          |
| Horses     | 8  | " "          |
| TOTAL      | 80 | head         |

Average carrying capacity of  
pasture 40 acres per animal

50 head feed requirements from pasture

4500 T.D.N's equal approximate requirements average for animal unit.

|                      |                |          |
|----------------------|----------------|----------|
| T.D.N's from corn    | 30,000         |          |
| " from oats & barley | 24,000         |          |
| " from hay           | 96,000         |          |
|                      | <u>150,000</u> | Produced |
|                      | 135,000        | Required |





SMALL CATTLE RANCH -- Subsistence Basis

Computations based on an allowance of \$400 for family living after  
4 percent interest has been allowed on investment.

6 Section -- 3840 acres

|                            |        |        |           |
|----------------------------|--------|--------|-----------|
| Land Investment            |        |        | \$7655.   |
| Grazing Area               | 3600   | @ 1.75 |           |
| Farm Crop Land             | 100    | @ 6.00 |           |
| Hay land                   | 120    | @ 6.00 |           |
| Farmstead and other        | 20     | @ 1.75 |           |
| Buildings and Improvements |        |        | 3000.     |
| Dwellings                  | 1200.  |        |           |
| Barns & Sheds              | 500.   |        |           |
| Granary & other            | 400.   |        |           |
| Water Development          | 400.   |        |           |
| Fences                     | 500.   |        |           |
| Machinery and Equipment    |        |        | 1000.     |
| Automobile                 |        |        | 250.      |
| Livestock                  |        |        | 6371      |
| 60 cows                    | @ 45.  | 2700.  |           |
| 12 Heifers 2's             | @ 38.  | 456.   |           |
| 13 Heifers 1's             | @ 25.  | 325.   |           |
| 26 Steers 1's              | @ 30   | 780.   |           |
| 25 Steers 2's              | @ 43.  | 1075.  |           |
| 3 Bulls                    | @ 100. | 300.   |           |
| 4 Work Horses              | @ 80.  | 400.   |           |
| 3 Saddle Horses            | @ 80.  | 240.   |           |
| 100 Chickens               | @ 75¢  | 75.    |           |
| 1 Sow                      | @ 20.  | 20.    |           |
| TOTAL INVESTMENTS          |        |        | \$18,270. |

|                             |          |
|-----------------------------|----------|
| Crop average and production |          |
| Corn 40 acres @ 18 bu.      |          |
| 6 acres snapped             | 108 bu.  |
| 32 acres pastured           |          |
| Oats 35 acres @ 20 bu.      | 700 bu.  |
| Barley 10 acres @ 16 bu.    | 160. bu. |
| Spring wheat 5 acres @      |          |
| 14 bu.                      | 70 bu.   |
| Hay 120 acres @ 3/4 ton     | 90 tons. |





# Feeding Program and Requirements

|           |  |                                   |
|-----------|--|-----------------------------------|
| Beef herd | 110 animal units                           | Average carrying capacity of      |
| Horses    | <u>8</u>                                   | Pasture 40 acres per animal unit. |
|           | 118 head -- feed requirements from pasture |                                   |
|           | 28   | crop production                   |

4500 T.D.N's equal approximate average feed requirements per animal unit.

|               |               |           |
|---------------|---------------|-----------|
| Corn          | 32,000        |           |
| Barley & Oats | 30,000        |           |
| Hay           | <u>90,000</u> |           |
|               | 152,000       | Available |
|               | 126,000       | required  |

|                                |       |       |         |
|--------------------------------|-------|-------|---------|
| Ranch Income                   |       |       | \$2365. |
| 25 steers 2's (850# @ 6.50)    | 55.25 | 1381. |         |
| 12 Heifer calves (360# @ 6.75) | 24.30 | 292.  |         |
| 8 Cows (950# @ 4.50)           | 42.75 | 342.  |         |
| 1 Bull                         |       | 50.   |         |
| Dairy Products                 |       | 200.  |         |
| Poultry Products               |       | 100.  |         |

|                                      |      |  |       |
|--------------------------------------|------|--|-------|
| Ranch Expenses                       |      |  | 1225. |
| Labor, 100 days                      | 250. |  |       |
| Salt                                 | 20.  |  |       |
| Threshing                            | 25.  |  |       |
| Livestock purchases -- 2 young bulls | 150. |  |       |
| Buildings & Improvements             | 140. |  |       |
| Depreciation                         | \$90 |  |       |
| Repairs                              | 50   |  |       |
| Machinery & equipment                | 150. |  |       |
| Depreciation                         | 100  |  |       |
| Repairs                              | 50   |  |       |
| Automobile                           | 180. |  |       |
| Depreciation                         | 80   |  |       |
| Repairs, gas & oil                   | 100  |  |       |
| Miscellaneous                        | 65.  |  |       |
| Taxes                                | 245. |  |       |

|                             |              |             |
|-----------------------------|--------------|-------------|
|                             | RANCH INCOME | \$1140.     |
| Interest at 4% on \$18,836. |              | <u>730.</u> |
|                             | LABOR INCOME | \$410.      |

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